

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF PENNSYLVANIA**

DELAWARE RIVERKEEPER	:	
NETWORK, et al.,	:	
	:	
Plaintiffs,	:	
	:	CIVIL ACTION NO. 18-cv-4508
v.	:	
	:	GENE E.K. PRATTER, J.
FEDERAL HIGHWAY	:	
ADMIN., et al.,	:	
	:	
Defendants.	:	

ORDER

AND NOW, this 30th day of May 2019, upon consideration of the Motion of Defendant Federal Highway Administration for Summary Judgment, the Motion of Defendant Pennsylvania Department of Transportation for Summary Judgment, Plaintiffs' Opposition to the Motions for Summary Judgment, and Plaintiffs' Cross-Motion for Summary Judgment, and upon consideration of the memoranda and other materials submitted in support thereof and in opposition thereto, **IT IS HEREBY ORDERED** that:

1. The Motion of Defendant Federal Highway Administration for Summary Judgment is **DENIED**.
2. The Motion of Defendant Pennsylvania Department of Transportation for Summary Judgment is **DENIED**.
3. Plaintiffs' Cross-Motion for Summary Judgment is **GRANTED**.

BY THE COURT:

GENE E.K. PRATTER
UNITED STATES EASTERN DISTRICT JUDGE

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**PLAINTIFFS' OPPOSITION TO DEFENDANT FHWA'S MOTION FOR
SUMMARY JUDGMENT AND DEFENDANT PENNDOT'S MOTION FOR
SUMMARY JUDGMENT AND PLAINTIFFS' CROSS-MOTION FOR
SUMMARY JUDGMENT**

Pursuant to Federal Rule of Civil Procedure 56, Plaintiffs Delaware Riverkeeper Network, and the Delaware Riverkeeper, submit this opposition to Defendant Federal Highway Administration's Motion for Summary Judgment, Defendant Pennsylvania Department of Transportation's Motion for Summary Judgment, and respectfully moves for summary judgment as more fully set forth in the attached supporting legal memorandum.

Respectfully Submitted,

Dated: May 30, 2019

/s/ Aaron Stemplewicz

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Riverkeeper, Maya Van Rossum*

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**PLAINTIFFS RESPONSE TO DEFENDANTS’ STATEMENTS OF FACTS
AND PLAINTIFFS’ COUNTER-STATEMENT OF FACTS**

This case arises out of the proposal by the Pennsylvania Department of Transportation (“PennDOT”) and the Federal Highway Administration (“FHWA”) to replace the Headquarters Road Bridge (“the Project”) over Tinicum Creek in Tinicum Township, Bucks County, Pennsylvania. The Delaware Riverkeeper Network and the Delaware Riverkeeper, Maya van Rossum, (“DRN” or “Plaintiffs”) respectfully submits the following response and counterstatement of facts to those originally submitted by the PennDOT and FHWA.

**DELAWARE RIVERKEEPER NETWORK’S RESPONSE TO PENNDOT’S
STATEMENT OF FACTS AND COUNTER STATEMENT OF FACTS**

1. Delaware Riverkeeper Network (“DRN”) is an advocacy organization whose mission is to protect and restore the Delaware River and its tributaries, habitats, and resources. Complaint (“Compl.”) ¶ 9.

a. *Admitted.*

2. Maya van Rossum is the Delaware Riverkeeper who advocates for the protection of the waterways in the Delaware River Watershed. Compl. ¶ 14.

a. *Admitted.*

3. FHWA provides stewardship over the construction, maintenance, and preservation of the nation's highways, bridges and tunnels. FHWA has authority over highways identified on the National Highway System and projects that are designed, maintained, or constructed using federal funds.

a. *Admitted.*

4. The PennDOT is an agency of the Commonwealth of Pennsylvania responsibly for State designated highways and transportation facilities. 71 P.S. §512(a).

a. *Admitted.*

5. The Headquarters Road bridge ("bridge") carries Headquarters Road over Tinicum Creek in Tinicum Township, Bucks County, Pennsylvania. The Project area is rural in natural and consists of mostly residential and agricultural land. (AR-27 at 12.) The bridge consists of a one-lane, concrete encase steel I-beam superstructure constructed in 1919 on stone masonry piers, abutments, and wing walls constructed in 1812. (AR-27 at 12.) On the east side of the bridge, there is a T-intersection with Sheep Hole Road

immediately adjacent to the bridge. (*Id.*) The posted speed limit is 25 mph.

(*Id.*)

a. *Admitted.*

6. On February 7, 2006, a 19 ton weight restriction was posted on the bridge.

(AR-14 at 51.) On May 11, 2010, this posting was reduced to a 10 ton limit.

(*Id.*) On March 2, 2011, the bridge was closed to traffic when a hole was found in the bridge deck during a routine inspection. (AR-27 at 15).

a. *Admitted.*

7. Prior to closure, the average daily traffic ranged from 631 to 900 vehicles.

(AR-27 at 12.)

a. *Denied.*

b. *The data relied upon by Defendants is, at best, highly questionable. For example, an expert report notes that:*

The historic traffic volume data . . . show that some areas have had a significant reduction in volume over the years. Investigation and discussion with the Tinicum Township Police Department indicated that long-term bridge closures around the township may have been a contributing factor to the changes in traffic volumes. Most notable was the Geigel Hill Road Bridge at Sheep Hole Road closure from 2002 to 2011; the Dark Hollow Road Bridge, closed from 2002 to 2004; and Headquarters Road Bridge at Sheep Hole Road, closed in Spring 2011 and yet to reopen. In addition, the Covered Bridge on Geigel Hill Road in Erwinna was closed for several weeks in 2013 due to a truck striking the wooden beams, and the Bridgeton Hill Road Bridge, north of Tinicum Township, was closed for several

months beginning in October 2012 for replacement. With at least one bridge closure within and around Tinicum Township since 2002, it is difficult to assess the true traffic patterns as motorists have been forced to detour so often.

AR-49, pg. 678.

8. The bridge is in a severely deteriorated state. (AR-27 at 15.) A summary of the documented deficiencies of the bridge are listed in the Existing Structure Condition Evaluation Report. (AR-5 at 14.)

- a. *Denied*

- b. *PennDOT's "fact" using the term "severely deteriorated" is a subjective description that inaccurately portrays the current state of Headquarters Road Bridge (the "Bridge"). The Bridge is the oldest of its type in the state of Pennsylvania, AR-52 pg. 216, capable of rehabilitation, AR-50 pgs. 1123 – 1124, and "retains sufficient historical integrity to continue to contribute to the Ridge Valley Rural historic District." AR-4, pg. 2.*

9. Based on the identified deficiencies, the needs of the Project include the following:

- A. The bridge is structurally deficient. (A structure is structurally deficient if it has deterioration to one or more of its major components: the deck, superstructure and/or substructure)

- B. The bridge is functionally obsolete. (A structure is functionally obsolete if it does not have geometric features that meet current design standards.)
- C. The retaining walls exhibit failure.
- D. Due to the existing structure's geometry and limited roadway width, it cannot safely and effectively accommodate current and future traffic needs including emergency response vehicles.
- E. Heavy scour exists along the western abutment resulting in exposure of the bridge foundations and an increase in the structure's vulnerability to further deterioration. (AR-27 at 16; AR-5 at 14.)

a. *Admitted.*

b. *These are the "deficiencies" that "PennDOT" purported to*

"identif[y]." The statement does not stand for the truth of the matter

asserted. AR-27, pg. 16; AR-5, pg. 14. By way of further answer,

experts have noted that this list of needs "contained conclusions

drawn rather than identifying specific problems." AR-27, pg. 299. For

the first statement, the implication is that the whole structure is

deficient, yet "the piers and abutments have not been proven

deficient." AR-27, pg. 299. For the second claim, it is yet to be proven

that the bridge is "'functionally obsolete'" as "[t]here are numerous

one lane bridges nearby that successfully serve the public at present."

AR-27, pg. 299.

10. Headquarters Road passes through the Ridge Valley Rural Historic District

("Historic District"). (AR-27 at 19.) The Historic District was listed in the

National Register of Historic Places on July 24, 1992 for its agricultural as

an example of farming in a small stream valley in Bucks County and for its architecture for its representative examples of rural vernacular architecture in southeast Pennsylvania from the late 18th through early twenties century. (AR-27 at 18; AR-26 at 45; AR-1 at 16-17.) The Keeper of the National Register determined that the bridge is a contributing element to the Historic District. (AR-27 at 21; AR-4.)

a. *Admitted.*

11. The bridge which is the focus of the Project crosses over Tinicum Creek (AR-26 at 21-23.) Tinicum Creek is identified as an exceptional value water under Title 25 of the Pennsylvania Code Chapter 93 by the Pennsylvania Department of Environmental Protection (“PaDEP”) and designated as Wild Scenic River by the National Park Service (“NPS”) as part of the Lower Delaware National Wild and Scenic River. (AR-26 at 21-23.)

a. *Admitted.*

12. The Project was classified as a Level 2 Categorical Exclusion (“CE”) under Section 771.117(d)(13) of FHWA’s NEPA regulations. 23 C.F.R. §771.117(d)(13).

a. *Admitted.*

13.FHWA and PennDOT (the “Agencies”) did conduct a more extensive alternative analysis than is required for a CE level project under the regulations. (AR-13; AR-31 at 24-95.)

a. *Denied.*

b. *PennDOT’s “fact” contains nothing more than self-serving conclusory legal argument by counsel. Nothing in AR-31, pg. 284-295, addresses or even mentions rehabilitation. The alternatives analysis in AR-13 is deficient because it only examined impacts with regard to harms to the Historic District for Bridge replacement and does not consider harms to the Bridge itself.*

14.The Agencies completed a Categorical Exclusion Evaluation, a Determination of Effects Report, and a Section 4(f) Evaluation that evaluated the following alternatives: the no Build, a new roadway alternative that totally avoided the Historic District, a new alignment downstream of the existing bridge, a one-lane rehabilitation alternative, a two-lane rehabilitation alternative, a one-lane replacement bridge, a two-lane replacement bridge on existing alignment, a two-lane replacement bridge and several options thereof. (AR-27 at 24-81; AR-12 at 16-39; AR-13 at 4-24).

a. *Admitted.*

- b. *Admitted to the extent that the statement reflects only what PennDOT “found,” and does not stand for the truth of the matter asserted.*
15. The roadway alternative that totally avoided the Historic District and the new alignment downstream of the existing bridge were found to be unreasonable and imprudent because these alternatives resulted in impacts that reached an extraordinary magnitude compared to other alternatives considered for the Project. (AR-27 at 25-26, 35-42.)
- a. *Denied.*
- b. *PennDOT’s “fact” contains nothing more than self-serving conclusory legal argument by counsel. By way of further response, in Statement of Fact ¶ 15 PennDOT claims the “new roadway alternative” was found “unreasonable and imprudent” because the impacts “reached an **extraordinary magnitude compared to the other alternatives considered for the Project.**” PennDOT Statement of Facts at ¶ 15 (emphasis added). Therefore, considering that one-lane rehabilitation was one of the “other alternatives considered,” by way of deduction PennDOT concedes that any problems related to the one-lane rehabilitation do not “reach[] an extraordinary magnitude.” Id. PennDOT does not claim anywhere in this statement of facts that the one-lane rehabilitation would be “unreasonable or imprudent” based*

*on problems that reached an “extraordinary magnitude.” PennDOT has already conceded that it is willing and capable of rehabilitating the Bridge, and that it would have no objection to the rehabilitated Bridge not meeting its alleged “design criteria.” See FHWA Statement of Facts at ¶ 19 (c) (ii) (conceding that “PennDOT proposed that if Tinicum Township assumed responsibility for the ownership and future maintenance of the bridge, **a one-lane bridge could be [rehabilitated].**”) (emphasis added); see also AR-15, pg. 10. (Rehabilitation Expert Report finding that “[r]eplacement of Headquarters Road Bridge Stone Masonry Abutments and Piers is not necessary because rehabilitation of the masonry can be achieved”); AR-18 (providing engineers plans for rehabilitation). As such, the primary driver of PennDOT’s decision to replace the Bridge has nothing to do with the stated needs, and instead has everything to do with the cost of maintenance.*

Furthermore, on numerous occasions PennDOT has already conceded that no alternative – including the proposed replacement – meets the applicable design criteria, and instead all proposals would require design exceptions, as the site is topographically constrained and cannot practically be re-engineered to fit modern highway

*standards because the entire surrounding area is historic, environmentally sensitive, and protected. Indeed, PennDOT specifically admits that two-lane replacement “would also require design exceptions since it **would not fully meet all current design standards.**” AR-14, pg. 43. Defendants found that “all geometric features associated with this project (horizontal and vertical curvature, sight distance, shoulder width, clear zone, bridge width, etc.) **will require design exceptions.**” *Id.* at 98 (emphasis added).*

16. The one-lane rehabilitation was not a reasonable or prudent alternative because this alternative did not satisfy the project needs by failing to meet the design criteria for the bridge width and the functionally obsolete needs. (AR-27 at 26, 43-50.)

a. *Denied.*

b. *As noted, in ¶15, none of the alternatives meet all current design standards and would therefore require exceptions. AR-14, pg. 43, 98.*

17. The two-lane rehabilitation alternative was not a reasonable or prudent alternative because it did not satisfy the project needs by not providing a bridge width meeting application design criteria and by not providing adequate turning radius for emergency vehicles. (AR-27 at 26, 50-58.)

a. *Denied.*

- b. *As noted, in ¶15, none of the alternatives meet all current design standards and would therefore require exceptions. AR-14, pg. 43, 98.*
- 18. The Agencies determined that the two lane replacement bridge on existing alignment resulted in the least harm overall under Section 4(f) – 23 C.F.R. 774.3(c). (AR-27 at 78-81, 89.)
 - a. *Admitted.*
 - b. *Admitted to the extent that the statement only reflects only what PennDOT “determined,” and does not stand for the truth of the matter asserted. The Agencies never “carried into the least harm analysis” an analysis of rehabilitation. See PennDOT Statement of Facts, at ¶ 88.*
- 19. For the selected alternative (the two-lane replacement bridge), the CE reports no impacts to wetlands, ground water resources, threatened and endangered species, archeology sites, air quality, noise, or contaminated areas and no commercial or residential displacements. (AR-26 at 24, 35, 42, 45, 51, 77, 81; AR-31 at 302-05)
 - a. *Admitted.*
 - b. *Admitted to the extent that the statement only reflects what is asserted in the “CE reports,” and does not stand for the truth of the matter asserted.*

Tinicum Creek

20. The CE and its supporting record supports a finding of no significant impact to Tinicum Creek. (AR-26 at 21-25.)

a. *Denied.*

b. *The record does not support a finding of no significant impact to*

Tinicum Creek. PennDOT's own Urban Engineer's study found that removing the piers increases the stream velocities at the bridge more than any other alternative evaluated for the 25-year water level. AR-60, pgs. 12-13. This increase in velocity will "lead directly to additional scour of the stream bed and cause more erosion in the vicinity of the Headquarters Road Bridge." AR-60, pg. 13.

Additionally, the proposed Bridge Project "will change the flow of Tinicum creek at and downstream of the bridge site, obviously resulting in a shift of the stream westward, causing bank erosion and flow alterations that will cause significant changes to the creek, its flows, habitats and quality at and downstream of the bridge site that have not been considered by PennDOT." Id. The "25-yr. flood elevation appears to increase from 199.52 to 200.25" for the preferred alternative, which therefore "increases the hydraulic impacts on the stream from a flooding perspective." AR-53, pg. 692.

This report also has concluded that “since stream realignment is likely with the proposed changes. This would accelerate streambank erosion, reduce tree cover due to the loss of trees from incised banks, and undercut the area of relocated bridge abutments.” AR-53, pg. 692. The extensive direct removal of mature trees in the riparian corridor for the larger bridge replacement has also been cited as a significant environmental concern. AR-55, pg. 598-600. Another expert report confirms this glaring problem, where it identifies that:

Moving the Abutment 15 feet to the west may have immediate, temporary reductions to scour of the abutment itself, however, it will result in an overall shift in the stream thalweg to the west and into the downstream bank. This will ultimately result in an increase in scour in the vicinity of the bridge and the abutment itself. Potential loss of the banks could extend for 500 feet downstream of the bridge and be as wide as 30 feet depending on the amount of trees that are compromised and lost as a result of increased pressure on the banks.

AR-56, pg. 787. The 15 foot realignment and shift in stream thalweg has the potential to endanger the integrity of the “existing tree line, fence, and pasture downstream of the bridge.” AR-56, pg. 787. To fully understand the consequences of the proposed changes, “a hydrologic and hydraulic analysis as well as consideration of changes to the potential Bank Erosion Hazard Index in the stream” is

necessary. AR-56, pg. 787. However, such an analysis is not part of the record.

Furthermore, the expert reports show that the elevation changes have not be appropriately analyzed with respect to floodplain and flood elevations in larger storms. AR-53, pg. 693. The proposed Project must have impacts to the floodplain fully evaluated for the 2 to 100 year storms to prevent negative impacts of this bridge design on life and property. However, such an analysis did not occur. AR-56, pg. 784-789.

The proposed construction methods also will threaten the ecological quality of Tinicum Creek, an “exceptional value” waterway. For example, one expert report describes how the increase in impervious surface area will result in increases in the rate, volume, and temperature of runoff which will have harmful impacts on the exceptional value stream. AR-56, pg. 785. While there is no question that these impacts will occur as a result of the proposed Project, and that such impacts are detrimental to the health and vitality of the stream, there is no analysis of this issue in the record. The replacement of the bridge “will not reduce the deposition of sediment in the EV stream overall.” AR-60, pg. 22. In fact, it is a fundamental

*principle that “[r]educing scour **does not reduce sediment deposition**; in fact, scour countermeasures reduce channel bed degradation in the vicinity of the bridge only as needed to protect the bridge infrastructure.” Id. (emphasis added). PennDOT did not account for the “increase in scour just upstream of the bridge as a result of the larger opening” without the piers. AR-56, pg. 785. Sediment from the sand/gravel bars that currently exist upstream “will mobilize until a new stable equilibrium is reached”, thus increasing the scour in the creek from existing conditions. Id. This sediment mobilization “potentially caus[es] issues for aquatic organisms, changing flow patterns, and raising concerns about water quality.” AR-56, pg. 787. “[G]iven the potential for sediment mobilization both in the form of bed and bank materials resulting from the change in bridge configuration, a comprehensive geomorphic study should be undertaken to best quantify the sediment losses and stream impacts caused by the proposed bridge.” AR-56, pg. 786. Such a study does not exist in the record. Additionally, removal of piers “does not improve ‘free-flow’ of the Creek as these features are not a barrier nor do they create ponding effects as a dam would.” AR-60, pg. 22.*

Indeed, overwidening the channel by repositioning the western abutment can have the reverse effect by “negatively impact[ing] the flow of the creek as the water depths are fairly shallow and would become more so with a wider overall channel bottom through the expanded bridge cross-section described in the CE document.” AR-60, pg. 22. The record also fails to include any analysis on the potential impacts of dewatering the stream channel. The expected “impacts to groundwater as a result of planned dewatering activities should be evaluated” because of the “interconnection” between the Tinicum Creek and the Tohickon Creek “may impact critical groundwater areas.” AR-60, pg. 21.

Because dewatering activities in this particular area may lead to drinking water and other groundwater impacts, further environmental analysis is necessary. PennDOT has suggested that to stabilize the stream, it will place riprap in the stream channel. However, expert analysis has confirmed that such a technique should only be considered a “last resort in EV streams.” AR-57, pg. 106.

21. The Project will result in improved conditions in Tinicum Creek and no wetland impacts as documented in the CE Evaluation (AR-26 at 21-24), the meeting minutes with the permitting agencies (AR-31 at 18-21, 102-05, 296-

301) the Hydrologic and Hydraulic reports(AR-31 at 106-282), and the Letter of No Wetland Finding (AR-31 at 302-05).

a. *Denied*

b. *See supra* ¶20.

22. Tinicum Creek is not a Section 4(f) property. (AR-27 at 21-22; AR-51 at 1537-38; AR-52 at 104-05; AR-24 at 38-39.) Tinicum Creek has not been designated and managed by a Federal, State, or local agency as a recreational resource or a wildlife and waterfowl refuge and is not publicly owned. (AR-7 at 28; AR-24 at 138.) Due to the lack of recreational designation and opportunity, Tinicum Creek it is not considered a Section 4(f) resource. (AR-7 at 28.) Tinicum Creek does not qualify as a Section 4(f) resource as a Wildlife and Waterfowl Refuge. (AR-7 at 28.)

a. *Denied.*

b. *PennDOT's "fact" contains nothing more than self-serving legal conclusory legal argument by counsel. By way of further response, Tinicum Creek is a 4(f) resource because Tinicum Creek has been found by the National Park Service as a historic resource. The National Park Service in an "official reply" to PennDOT and FHWA found that while waterways are not generally found to be historic resources, "[t]he fact that Tinicum Creek is surrounded by the Ridge*

Valley Rural National Historic District (NHD) and that the Headquarters Road has been determined by the Keeper of the National Register (2006) to be a contributing resource of the Ridge Valley Rural NHD is sufficient to designate this project and Tincum Creek Wild and Scenic River Under FHA 4F.” AR-51, pg. 1469 (emphasis added).

23. As noted in the National Park Service publication *Delaware River Basin-National Wild and Scenic River Values* prepared in September 2012, Tincum Creek is listed under the cultural, geological, and scenic Outstanding Remarkable Value (“ORV”) categories. (AR-27 at 21-22; AR-24 at 38-39; AR-7 at 6.) Tincum Creek is not listed under the recreational ORV category. (AR-7 at 6.) This publication goes on to explain that Tincum Creek lacks recreational value: “...because of limited access and a lack of regionally rare, unique or exemplary recreation opportunities, Tincum Creek does not contain a recreational outstandingly remarkable value (“ORV”). (AR-7 at 28.)

a. *Admitted.*

b. *Admitted to the extent that the facts described are what the “publication” describes, and does not stand for the truth of the matter*

asserted. Tinicum Creek is listed for the Cultural, Geological, and Scenic ORVs. AR-7, pg. 6.

24. Tinicum Creek is not a navigable water; and therefore, is not publicly owned submerged lands. (AR-24 at 138.) Instead, Tinicum Creek is owned by the adjacent property owners with private property lines extended to the center of the stream. (*Id.*) Access to the creek is very limited because the land adjacent to Tinicum Creek, and the Creek itself, are privately owned which further frustrates recreational use of the Creek. (AR-27 at 21-22.)

a. *Denied.*

b. *PennDOT's "fact" contains nothing more than self-serving conclusory legal argument by counsel. By way of further response, "Navigable waters" are defined as "the waters of the United States, including the territorial seas." 33 U.S.C. § 1362(7). "Waters of the United States" includes: "(5) Tributaries of waters identified in paragraphs (t)(1)–(4) of this section, including adjacent wetlands." 33 C.F.R. § 328.3(a). Tinicum Creek is clearly a tributary to waters subject to paragraph (t)(1), which includes the Delaware River. This conclusion is further solidified by Rapanos v. United States, which sought to construe the statutory term "navigable waters." 547 U.S. 715 (2006). All the justices agreed that the term "navigable waters"*

includes waters beyond those traditionally considered “navigable-in-fact.” *Id.* at 731 (plurality opinion); *id.* at 767 (Kennedy, J., concurring); *id.* at 792 (Stevens, J., dissenting). The plurality opinion held that “relatively permanent, standing or continuously flowing bodies of water ‘forming geographic features’ that are described in ordinary parlance as ‘streams, oceans, rivers and lakes’ that are connected to navigable-in-fact waters” are to be considered navigable waters. *Id.* at 716. Tinicum Creek’s connectivity to the Delaware River, and its permanent state of being a free flowing body of water, confers “navigable water” status to the Creek.

25. As noted in the National Park Service publication *Delaware River Basin-National Wild and Scenic River Values* prepared in September 2012, Tinicum Creek is not recognized in the Outstanding Remarkable Value Category for its ecological values. The document explains: “This segment has unique and some good quality ecological values on a local or statewide scale. However, overall, the ecological values of this segment do not possess rare, unique, or exemplary qualities.” (AR-7 at 28.)

a. *Admitted.*

b. *Admitted to the extent that the facts described are what the “publication” describes, and does not stand for the truth of the matter*

asserted. . Tinicum Creek is listed for the Cultural, Geological, and Scenic ORVs. AR-7, pg. 6.

26. A search of the Pennsylvania Natural Diversity Inventory (“PNDI”) completed most recently on August 8, 2018 did not show any threatened or endangered species or species of concern (which includes rare species) in the project area. (AR-26 at 35, 37-41).

a. *Admitted.*

27. The existing short spans with two piers in the stream channel contribute to scour due to its susceptibility to debris accumulation during flood events. (AR-26 at 21-23; AR-24 at 36, 40-41.) The scour has resulted in an ongoing discharge of sediment into the stream. (*Id.*). The bridge’s abutment and piers are obstructions in the stream channel that impact the hydraulics of the stream. (*Id.*; AR-31 at 103-104.)

a. *Denied.*

b. *The removal of abutments or piers would “not improve ‘free-flow’ of the Creek as these features are not a barrier nor do they create ponding effects as a dam would.” AR-60, pg. 22.*

28. PennDOT conducted a preliminary hydrologic and hydraulic (“H&H”) analysis of some of the project alternatives for the 2-year through 100-year storm events. (AR-14 at 30.) HEC-RAS model was used to simulate water

surface elevations and velocities associated with the existing and proposed conditions. (AR-14 at 30; AR-31 at 116.)

a. *Admitted.*

b. *Admitted to the extent the study is understood as being incomplete and “preliminary,” and is required to be updated. See PennDOT Statement of Facts, at ¶30.*

29. The preliminary H&H analysis performed showed either improvements or no change in the flood elevations and stream velocities within a short distance downstream for the 25 and 100 year storm events for the selected bridge replacement. (AR-14 at 30, 41; AR-24 at 7, 40-41.) The H&H analysis revealed no threat to downstream adjoining property owners for the selected alternative. (*Id.*)

a. *Denied.*

b. *See supra* ¶ 20. (*disputing the sufficiency of the flood elevation and stream velocity review*); *see also* AR-24, pg. 252–266.

30. This study will be updated and finalized prior to submittal of the PA Chapter 105 permit and the Section 404 permit joint application with PaDEP and USACE. (AR-14 at 30, 41; AR-24 at 7, 40-41)

a. *Admitted.*

b. *DRN does not dispute that the “H&H analysis” is not complete.*

31. The selected alternative (the two-lane replacement bridge) will minimize the disturbance to the stream by only placing one pier in the stream (the existing bridge has two piers in the stream), by placing the new pier at the same location of one of the existing piers, and by repositioning the western abutment so that it is located outside the stream channel. (AR-26 at 21-23; AR-24 at 7.) The fill in front of this abutment will be graded to direct the channel into the existing downstream location. (AR-26 at 22.) By mimicking the existing stream conditions, downstream impacts will be minimized. (*Id.*) Removing a pier from the waterway is an improvement to the downstream communities and ecological systems. (*Id.*) The removal of the pier will create a better free flow condition enabling fish to pass freely, which is preferred by PaDEP. (*Id.*; AR-31 at 104 subsection f.)

a. *Denied.*

b. *See supra* ¶20.

32. The existing scour issue will be addressed within the stream and along the banks of the stream. (AR-26 at 21-23; AR-24 at 7.)

a. *Denied.*

b. *The “existing scour issue” was created by PennDOT. Prior to PennDOT installing grout bags, “there were aggradation/degradation processes occurring at the bridge where the*

natural stream substrate was washing into and out of the bridge footprint and no obvious scour was occurring at the bridge piers or abutments.” AR-60, pg. 20. Therefore, to the extent there is a “scour issue” it was created by PennDOT and can be addressed via rehabilitation. Id.

33. The H&H Report supports the following for the two-lane replacement bridge:

- a. The velocity immediately downstream of the bridge returns back to the existing velocity.
- b. Degradation of the stream is not anticipated as the stream bed consists of rock and stone, not silt and sediment.

(AR-31 at 299; AR-24 at 7.)

a. *Denied.*

b. *See supra* ¶ 20 (*addressing velocity increases, and sediment impacts*).

34. PaDEP stated that it could not permit a bridge replacement with three spans (i.e., two piers in the stream channel). (AR-31 at 104.) PaDEP and US Army Corps of Engineers (“USACE”) preferred to the extent feasible removing the bridge abutment and piers from the stream channel. (AR-31 at 20-21, 103, 298.)

a. *Denied.*

b. *A review of AR-31, pg. 104, shows that PaDEP never “stated that it could not permit a bridge replacement with three spans.” No such statement was made. Furthermore, Plaintiffs seek rehabilitation of the*

existing three span structure, not building a “bridge replacement” with three spans.

35.DRN has submitted no technical information or studies to substantiate its alleged adverse effects to the stream or to downstream property owners.

a. *Denied.*

b. *DRN submitted numerous technical reports and studies substantiating adverse effects to the stream and downstream property owners.*

Furthermore, DRN submitted technical reports and studies identifying critical information gaps that could also show adverse effects to the stream and downstream property owners. See, e.g., McMullan & Associates, Preliminary Condition Assessment and Proposed Rehabilitation, March 6, 2012 at AR-50, pg. 1120–1142; Meliora Design, Headquarters Road over Tinicum Creek, Alternative Analysis Study Review, May 2012 at AR-50, pg. 1118–1119; McMullan Associates, Headquarters Road Bridge Letter to Maya van Rossum, June 14, 2013 at AR-50, pg. 1112–1115; Cultural Heritage Partners, Consulting Party Meeting for Headquarters Road Bridge, March 17, 2014 at AR-48, pg. 265–266; McMullan & Associates, Headquarters Road Bridge – Coring Test, March 18, 2014 at AR-48, pg. 269–270; McMullan & Associates, PowerPoint Presentation: Headquarters

Road Bridge, April 2, 2014 at AR-49, pg. 506–542; Mark L. Stout Consulting, LLC., Tinicum Township and the Headquarters Road Bridge: Planning the Future, April 14, 2014 at AR-49, pg. 656 – 689; Robert W. Reynolds, The Bridges of Tinicum Township, August 13, 2015 at AR-52, pg. 212–227; McMullan Associates, Review of Headquarters Road Bridge Project–Determination of Effects Report, December 7, 2015 at AR-53, pgs. 548–551; Mark L. Stout Consulting, Comments on the PennDOT Determination of Effects Report on Headquarters Road Bridge, December 8, 2015 at AR-53, pg. 824-836; Meliora Design, Headquarters Road Over Tinicum Creek – Determination of Effects Report, December 14, 2015 at AR-53, pg. 688 – 694; Mark L. Stout Consulting, Supplement to 14 December 2015 “Comments on the PennDOT Determination of Effects Report of the Headquarters Road Bridge”, January 18, 2016 at AR-54, pg. 105-108; Roberts Engineering for Mark L. Stout Consulting, Preliminary Design for Intersection Improvements at Headquarters Road Bridge and Sheephole Road, June 21, 2016 at AR-57, pg. 108-119; McMullan & Associates, Rehabilitation of the Headquarters Bridge Masonry Substructure, June 27, 2016 at AR-55, pg. 632-647; Princeton Hydro, report on potential stream impacts from Sheep Hole Road Bridge

Replacement Tinicum Township, Bucks County, Pennsylvania, July 7, 2016 at AR-56, pg. 784-789; Princeton Hydro, Comments on the Draft Categorical Exclusion Evaluation, January 9, 2017, AR-60, pg. 19-24; Meliora Design, Draft Categorical Exclusion Evaluation, January 12, 2017, AR-60, pgs. 25- 26; Princeton Hydro, Response to PennDOT Comments on Sheephole Bridge, January 12, 2017 at AR-57, pg. 104-108; McMullan & Associates and Roberts Engineering Group Comments on Draft CE Response, June 12, 2017 at AR-57, pg. 382-384; Rob Reynold, Draft Categorical Exclusion Comment Response, July 13, 2017 at AR-57, pg. 347-356.

36. The impacts during construction will be mitigated through the use of erosion and sediment pollution control best management practices (“BMPs”) appropriate for exceptional value streams. (AR-24 at 63-64.)

- a. *Denied.*
- b. *Final plans have not yet been submitted, therefore is no evidence that impacts during construction will be mitigated. See PennDOT Statement of Facts ¶ 37 (admitting that BMPs “will be reviewed” by the Pennsylvania Department of Environmental Protection); see also supra ¶ 20 (describing expected construction impacts).*

37. During the September 2012 pre-application meeting, PaDEP recommended some BMPs to address erosion control for the exceptional value stream. (AR-31 at 300.) Ultimately, the BMPs included in the design of the Project will be reviewed and approved by PaDEP and the Bucks County Conservation District through the PA Chapter 105 permit process. (AR-24 at 64.)

- a. *Denied.*
- b. *Plaintiffs deny this statement to the extent that the statement assumes that the design of the Project “will be ...approved” by the reviewing agencies.*

Ridge Valley Historic District

38. In 2006, the USACE asked the Keeper of the *National Register* to determine whether the bridge was eligible for the *National Register* and if it was eligible, whether it was individually eligible or a contributing element to the Historic District. (AR-39 at 207 – 08.)

- a. *Admitted.*

39. On April 28, 2006, the Keeper found that the bridge is eligible as a contributing element to the *National Register* listed rural Historic District in the context of the agricultural development of the township, regional transportation, and operation of local mills, and its engineering. (AR-4.)

- a. *Admitted.*
- b. *In full the Keeper found:*

The Headquarters Road Bridge was listed in the National Register of Historic Places on July 24, 1992, as a contributing property in the Ridge Valley Rural Historic District, Bucks County, Pennsylvania. The bridge consists of early 19th century stone abutments and piers carrying an early 20th century replacement concrete deck supported on concrete-encased steel I beams. Both its original construction and alteration occurred within the historic district's defined Period of Significance (1790-1940). The bridge is historically significant in the context of the development of the township, regional transportation, and the operation of local mills, and is of engineering significance both for its early 19th century construction and its sensitive modernization in 1919. Although the concrete deck shows signs of considerable deterioration and the deck has been altered with the removal of the 1919 railings, the bridge retains sufficient historic integrity to continue to contribute to the Ridge Valley Rural Historic District.

AR-4, pg. 2

40. The bridge also was not determined to be individually eligible for the *National Register* as part of the PennDOT historic bridge inventory. (AR-4; AR-14 at 103.)

- a. *Denied.*
- b. *The assessment conducted of the Bridge by A.G. Lichtenstein and Associates, Inc. – which was relied upon for the determination regarding the individual eligibility of the Bridge – is almost entirely*

devoid of any accurate information. For example, the review states that the “yr. built” was “1919.” AR-14, pg. 106. However, that assessment is nearly one-hundred years off, as the Bridge was built in the “early 19th century.” AR-4, pg. 2; see also AR-1, pg. 5.

Furthermore, the assessment states that the Bridge is one of “most common, mid-20th century bridge types.” AR-14, pg. 106. However, as noted above, this Bridge is not of mid-20th vintage, nor is it “common.” Id. Indeed, it is the oldest surviving bridge of its type in the entire Commonwealth. AR-56, pg. 892; AR-52, pg. 212 – 227; AR-57, pg. 382 – 384; see also AR-1, pg. 5 (describing the Bridge as the “older” of the “early bridge” sites). The assessment also misstates that the Bridge “is not historically or technologically noteworthy,” id., which expressly conflicts with the later findings of the Keeper. See AR-4 (finding that the Bridge has “engineering significance” and is “historically significant”). As such, nearly the entirety of the substantive review relied upon to make the determination that the Bridge was not individually eligible rests upon materially and verifiably false information.

41. The Pennsylvania Historical Museum Commission (“PHMC”), the State Preservation Office (“SHPO”) concurred with the Keeper’s finding and

further clarified the finding in an email to Jessie Salamun dated August 15, 2014. (AR-14 at 103.)

a. *Denied.*

b. *PennDOT mischaracterizes the email that they cite. The Pennsylvania Historical and Museum Commission did not “concur” with the findings, rather, the email only shows that the Pennsylvania Historical and Museum Commission communicated the status of the Bridge, not that it agreed with that classification. AR-14, pg. 103.*

42. The National Register Nomination Form for the Historic District does not identify the bridge as significant or within the areas and period of significance. (AR-1 at 16-21.) The Nomination Form merely refers to the bridge in the description of the physical appearance of the District as one of the stream crossings associated with the road network within the Historic District and includes a description of the bridge. (AR-1 at 4-5, 14.) Instead, the Nomination Form emphasizes the agricultural development and architecture associated with the farmsteads when discussing the significance of the District. (AR-1 at 16-21.) As noted in the Nomination Form, the grist mill no longer remains. (AR-1 at 3.)

a. *Denied.*

b. *Plaintiffs deny this claim to the extent that the “fact” purports to describe what the Nomination Form “emphasizes.” PennDOT Statement of Fact, at ¶ 42. The Nomination Form explicitly found that “[a]nother important element of this district is **the fine collection of six bridges,**” and then identifies that the Bridge is one of the six and the oldest. AR-1, pg. 3, 5 (emphasis added).*

43. Tinicum Creek is not an historic resource. The text from page 5 of the National Register Bulletin on *How to apply the National Register Criteria for Evaluation*, defining sites, (since a creek is not a building, structure, object or district) is as follows:

A site may be a natural landmark strongly associated with significant prehistoric or historic events or patterns of events, if the significance of the natural feature is well documented through scholarly research. Generally, though, the National Register excludes from the definition of “site” natural waterways or bodies of water that served as determinants in the location of communities or were significant in the locality’s subsequent economic development. While they may have been “avenues of exploration,” the features most appropriate to document the significance are the properties built in association with the waterways.

(AR-30 at 515.) Natural features are not considered eligible for the National Register individually or as a contributing element to a Historic District. (AR-51 at 1537-38.)

a. *Denied.*

- b. *Tinicum Creek has been found by the National Park Service as a historic resource. The National Park Service in an “official reply” to PennDOT and FHWA found that while waterways are not generally found to be historic resources, “[t]he fact that Tinicum Creek is surrounded by the Ridge Valley Rural National Historic District (NHD) and that the Headquarters Road has been determined by the Keeper of the National Register (2006) to be a contributing resource of the Ridge Valley Rural NHD is **sufficient to designate this project and Tinicum Creek Wild and Scenic River under FHA 4F.**” AR-51, pg. 1469 (emphasis added); see also AR-1, pg. 3, 5 (wherein the Creek is mentioned frequently in the Nomination Form as a unique part of the landscape and the driving force for how the road network developed, specifically finding that the creek “unite[s]” the group of farms that make up the Ridge Valley Rural Historic District”).*
44. The nomination form does not specifically reference Tinicum Creek as a contributing element to the Historic District. (AR-51 at 1537-38.)
- a. *Denied.*
- b. *As described above, the Nomination Form frequently describes Tinicum Creek as a unique part of the landscape and the driving and unifying force for how the road network developed and how the*

contributing elements of the District are connected. See AR-1, pg. 3,

5.

45. The Project will not result in a significant impact to Ridge Valley Historic District as documented in the CE Evaluation (AR-26 at 44-45), the National Register Registration Form for the Ridge Valley Historic District (AR-1); the Determination of Effects Report (AR-12); the Response to the PA SHPO comments on the Determination of Effects Report (AR-13); the Determination of Effects Report Comment Response Document (AR-14) and the Memorandum of Agreement (AR-26 at 52-58).

a. *Denied.*

b. *The destruction of the oldest Bridge in the Historic District will have a significant impact on the Historic District. Removing the single lane historic Headquarters Road Bridge and building a modern two lane bridge “would cause significant damage to the historic integrity of this portion of the Ridge Valley Historic District.” AR-45, pgs. 498-499. As noted by a professional Architectural Historian:*

One of the key themes of the Ridge Valley Historic District was the interplay of man-made roadways and natural waterways. The district is mostly a series of narrow, twisting, rising and falling roads following creeks. There were six bridges and two fords in the district. The Headquarters Road Bridge is the oldest in the district as all nearly all the other bridges were built in the auto era to

replace fords. In terms of significance, the Headquarters Road Bridge is the most significant in the district due to its age, design, and rarity. The ninety degree turns onto Sheep Hole Road and Headquarters Road on the one side of the bridge would likely lead to a change in bridge alignment that could impact the archeological remains of Fretz's Mill. Changes in bridge alignment would **also ruin the relationship of the bridge to the mill site and the road network that has remained intact for over two centuries.** The intrusion of a modern two lane replacement bridge **would significantly diminish the integrity and the feeling of the Fretz Mill portion of the Ridge Valley Historic District . . .**

The Headquarters Road Bridge brought farmers to Fretz's mill from four directions and the house and bridge are sited in view of each other. As a miller, Christian Fretz was a significant man in the local farming community and he accrued some wealth as seen in the Georgian architecture of his fine home. Fretz's standing in the community and his status are apparent in the way **that his stone house, the bridge, and the mill site serve as a central axis to the roads that converge at this rural agricultural industrial site.** Christian Fretz's stone farmhouse stands at the junction of Headquarters and Red Hill Road which combine briefly in a straight approach to the bridge and then split after the bridge with ninety degree turns onto Sheep Hole and Headquarters Road.

The bridge plays a **critical role in defining the central axis of this part of the historic district and the bridge alignment, use of red shale for abutments and piers, and one lane scale tie the bridge into the landscape and are in sync with the winding, narrow, and scenic roadways that meet at the bridge.** Perhaps the most interesting travel leg in this area is the approach made on Sheep

Hole Road, a narrow dirt road barely two lanes wide that follows the Tinicum Creek to the bridge. Traveling down this road along the creek under a dense tree canopy and at the end glimpsing the red shale lozenge shaped bridge piers that date back to 1812 is truly a journey that engenders a sense of traveling back in time into the nineteenth century. Such remnant surviving road landscapes in Pennsylvania are extremely rare, and to imagine the change that would come from finding a realigned modern concrete span at the end of the dirt Sheep Hole Road seems an avoidable tragedy in the management of the Commonwealth's historic resources and National Register listed rural landscapes.

AR-45, pg. 498-500.

The bridges of Tinicum Township may be the most significant collection of bridges in a single municipality in the state of Pennsylvania. When the historic resources of Tinicum Township were documented by the Heritage Conservancy from 1989-1990, nearly every bridge was historic. See Bridges of Tinicum Township, Robert Reynolds, AR-52, pg. 212-227. Headquarters Road Bridge is part of a complete collection of unique waterway crossings representing an entire history of crossings in the region from the birth of the nation to present day, a collection which exists nowhere else in the Commonwealth. Id. The historic district registration form identifies six bridges as contributing resources and states that "as a collection,

*the bridges of the Ridge Valley strongly reflect two themes: early settlement and transportation changes.” Because the Bridge is the oldest remaining example of a single lane pier-to-pier bridge in the Commonwealth, its destruction – and the resulting extinction of its type – would forever leave a gaping hole in the formerly complete collection of historic bridge types contained in Tinicum Township. Therefore, replacing one of only six Bridges in the historic district – the oldest one – with “[a] new span will have a **significant negative effect** on the Ridge Valley Historic District,” would forever alter one of the primary factors contributing the historic district’s classification. Id.*

*PennDOT already concluded that the replacement of the Bridge “will have an **Adverse Effect** on the Ridge Valley Rural Historic District.” AR-12, pg. 61 (emphasis in original). Specifically, Determination of Effects Report the proposed undertaking “will result in physical destruction to part of the historic district” as it will “require the removal and replacement of one contributing resource to the Ridge Valley Rural Historic District: the Headquarters Road Bridge,” thus “alter[ing] the historic district.” Id. Additionally, the National Park Service has already determined that the demolition and*

replacement of “contributing bridge[s] from the historic district will have an Adverse Effect on the Ridge Valley Rural Historic District.” AR-60, pgs. 1-2. The adverse effect determination by both agencies further suggests that the impact here rises to the level of “significant.” Bridge replacement may be a “death sentence for the Ridge Valley Historic District.” AR-60, pg. 15.

46. PennDOT conducted an Existing Structure Condition Evaluation Report, a Core Drilling Investigation, a Bridge Width Evaluation, a Determination of Effects Report, a Section 106 Memorandum of Agreement, and a Section 4(f) Evaluation which are the appropriate environmental studies when a project will likely result in a use of a Historic District. (AR-5; AR-9; AR-10; AR-12; AR-25; AR-27.)

- a. *Denied.*
- b. *Plaintiffs deny this claim to the extent the “fact” asserts a legal conclusion that the mentioned studies are the “appropriate environmental studies” required to be generated for NEPA and 4(f) purposes.*

47. All of the alternatives considered would have an adverse effect on the Historic District, even the rehabilitation alternatives considered for the

Project, because the superstructure of the bridge will need to be replaced for all alternatives considered. (AR-27 at 80-81.)

a. *Admitted.*

48. The Agencies found that the bridge cannot be rehabilitated from a structural point of view to meet the needs of the community which would require significant routine maintenance. (AR-27 at 43-47, 49, 50-54, 57, 80.)

a. *Admitted.*

b. *Admitted to the extent that the fact describes what the “Agencies found,” and does not stand for the truth of the matter asserted.*

Plaintiffs have provided expert reports indicating that the Bridge can be sufficiently rehabilitated AR-15, pg. 1-10. (Rehabilitation Expert Report finding that “[r]eplacement of Headquarters Road Bridge Stone Masonry Abutments and Piers is not necessary because rehabilitation of the masonry can be achieved . . .”). Additionally, PennDOT has conceded that rehabilitation is structurally possible as it was willing to do such rehabilitation if Tinicum Township took responsibility for maintenance. See FHWA Statement of Facts at ¶ 19 (c) (ii).

49. PHMC and the Advisory Council on Historic Preservation (“ACHP”) are the agencies with jurisdiction over historic resources. 36 C.F.R. 800.2(b)

&(c)(1). PHMC, ACHP, and NPS have agreed with PennDOT's and FHWA's recommendations. (AR-25 at 1,3,8; AR-24 at 137.) ACHP and PHMC also agreed to Section 106 Memorandum of Agreement for the Project that the recommended mitigation will address the impacts to the Historic District caused by replacing the bridge. (AR-25 at 1,3,8; AR-27 at 137.)

- a. *Denied.*
- b. *Both documents cited by PennDOT only address whether the proposed mitigation is appropriate to address impacts to the 4(f) property of the Historic District as a whole but say nothing regarding the adverse impact to the 4(f) property of the Bridge itself. Additionally, the proposed mitigation efforts will not mitigate the adverse impact to the Historic District. See supra at ¶45. Furthermore, there was no statement made by any of the parties that the proposed mitigation would be legally sufficient to address the adverse impacts to the Historic District. AR-25.*

50. The mitigation for the Historic District set forth in the Memorandum of Agreement includes:

1. PennDOT will form a Design Advisory Committee (DAC) for the project consisting of no more than nine members. Membership will be drawn from the following groups: NPS, Bucks County Officials, Tinicum

Township Supervisors, the SHPO, the Advisory Council on Historic Preservation (ACHP), and the local public.

- a. The DAC will be invited to review project plans and specifications and provide feedback on aesthetic elements. DAC review will occur at least twice during the project development process at roughly the 30 percent, 60 percent, and 90 percent phases. The DAC will again be engaged during the early stages of construction to provide input on the masonry sample panel.
 - b. PennDOT will incorporate the recommendations of the DAC, as practicable.
2. During construction, stone front from the existing structure's masonry components will be salvaged for use in the proposed structure. Using a stone mason with experience in similar projects, salvaged stone will be used as a stone facing on concrete components of the preferred alternative, including the abutments, wing walls, and approach roadway barriers. The stone facing should closely match, to the extent possible, the orientation and layout of existing stone, taking special care to place larger stones at the base of the substructure and transitioning to smaller rubble course at the top. The existing plaques will be retained and incorporated into the recommended preferred alternative.
- a. To the maximum extent possible, the new structure will be designed in accordance with the Secretary of Interior's Standards which indicate new construction should be compatible.
 - b. A masonry sample panel will be developed prior to the start of the application of any masonry facing to demonstrate the layout and orientations of the proposed stone work as well as mortar pointing. A field meeting will be held with members of the DAC to review the masonry sample panel and provide comment. The result of the field meeting, together with the masonry sample panel, will serve as a guide for all stonework that is to take place on the structure.
 - c. PennDOT will construct a bridge with the minimum allowable roadway width, in accordance with the applicable design standards, within the same approximate footprint as the existing bridge.
 - d. The structure will incorporate brown, painted, Type 10M railing.

- e. Rock Scour protection surrounding the bridge abutments will be choked with top-soil and seeded with a riparian seed mix to minimize, to the extent possible, visible rock.
- 3. PennDOT will develop and construct a physical display or a content for web publication on the history and historic significance of the Historic District including information on the bridge.

(AR-25 at 3-4.)

- a. *Admitted.*
- b. *Admitted to the extent that the mitigation measures set forth in the Memorandum of Agreement were designed specifically to mitigate only the adverse impact to “the Ridge Valley Rural Historic District” generally, and not the bridge itself. AR-25, pg. 2.*

Project Needs

51. The Agencies developed a project need for the Headquarters Road Bridge Project based in tangible, fact-based transportation problems and deficiencies. (AR-5 at 14.)

- a. *Denied.*
- b. *PennDOT’s “fact” contains nothing more than self-serving conclusory legal argument by counsel.*

52. The Existing Condition Evaluation Report documents the following bridge deficiencies:

1. Extensive loss of stone and mortar base along the abutments, piers, and wingwalls.
2. Evidence of settlement and/or base slippage and sliding failure at the wingwalls.
3. Several locations of stone bulging due to settlement and/or stone displacement.
4. High percentage of cracked and crushed stone masonry in the piers and abutments.
5. Undermining of existing foundations at the Ottsville abutment due to scour.
6. Widespread deterioration of superstructure.
7. Inadequate ratings of superstructure and substructure
8. In ability to meet seismic design requirements due to insufficient flexural capacity and ductility of substructure.
9. Insufficient width to provide two lanes of traffic for safety purposes.
10. Inadequate turning radius at Sheep Hole Intersection.
11. Foundations on erodible rock require notching into bedrock.
12. Current live loads have exceeded the intended capacity of the existing substructure.
13. Insufficient scour protection considering limited hydraulic opening and susceptibility to extensive debris accumulation.

(AR-5 at 14.) Based on these deficiencies, the transportation related objective that the Project will address include: the bridge is structurally deficient; the bridge is functionally obsolete; the retaining walls exhibit failure; due to structures existing geometry and roadway width, the bridge cannot safely and effectively accommodate current and future traffic needs including emergency response vehicles, and heavy scour exists in the area of the western abutment resulting in expose of the bridge's foundation and increased vulnerability to further deterioration. (AR-26 at 7.)

- a. *Admitted.*
- b. *Admitted to the extent that the "fact" reflects the contents Existing Structure and Evaluation Report and does not stand for the truth of the matter asserted. Plaintiffs' own report by a historic bridge restoration specialist found the deficiencies could be addressed via rehabilitation. See, e.g., AR-18 (engineering plans for rehabilitating the Bridge); see also AR-15 (expert review for rehabilitating all the stone masonry of the Bridge).*

53. The Agencies provided the draft purpose and need statement to the consulting parties for review and comment. (AR-27 at 249-69, 287-301, 304-33; AR-8.) The consulting parties included PHMC, NPS, the DRN and its consultants, the Township, and other residents impacted by the Project. (AR-27 at 249-69, 287-301, 304-33.) The project needs also were discussed at several of the consulting party meetings. (AR-27 at 249-301, 302-39.)

- a. *Admitted.*

54. The comments received on the project needs were considered and some modifications were made to the purpose and need as a result of these comments. (AR-8.) For example, a Project goal was added to develop a solution that was sensitive to the historic and rural nature of the surrounding area to address comments made by the DRN and other consulting parties.

(AR-27 at 306; AR-26 at 7.) The comments were addressed in the September 2013 Comment Response Document. (AR-8.)

a. *Admitted.*

55. The Project's purpose and need is supported by the Existing Structure Condition Evaluation Report, a turning movement study, average daily traffic ("ADT") counts from the Delaware Valley Regional Planning Commission and PennDOT, and PennDOT's inspection reports for the bridge. AR-5; AR-36; AR-28 at 65-70.

a. *Denied.*

b. *PennDOT's "fact" contains nothing more than self-serving conclusory legal argument by counsel.*

56. Additional studies were conducted in response to public comments to verify the project need which, included but was not limited to, an updated turning radius study, a Core Drilling Investigation dated March 2014, and a Bridge Width Evaluation dated April 2015. (AR-28 at 39-48; AR-9; AR-10.)

a. *Denied.*

b. *PennDOT's "fact" contains nothing more than self-serving conclusory legal argument by counsel.*

DNR, Consulting Party, and Public Involvement

57. The Agencies held several consulting party meetings and public meetings.

The consulting party meetings were held under Section 106 of the National Historic Preservation Act on August 14, 2006, October 20, 2006, July 31, 2008, June 17, 2013, November 4, 2013, April 2, 2014, and August 24, 2016. (AR-26 at 86; AR-12 at 63.) The consulting party meetings focused on the potential effects to historic resources. 36 C.F.R. §§800.4(a)(3), 800.5(c), 800.6(a) & (b).

a. *Admitted.*

58. At the consulting party meetings, input was requested on the project needs, identification of historic resources, the evaluation of the project alternatives, the mitigation, and on the Memorandum of Agreement developed to resolve the adverse effects to the Historic District. (AR-27 at 249-301, 302-339, 481-534.)

a. *Admitted.*

b. *The proposed mitigation was overwhelmingly rejected by the majority of consulting parties. See, e.g., AR-19, pgs. 1-20.*

59. Representatives from PHMC, the State Historic Preservation Office (“SHPO”), the NPS, and the U.S. Army Corps of Engineers (“USACE”) attended all of these meetings. The ACHP attended the meetings held in

2014 and 2015. (AR-27 at 271-78, 334-39, 431-38, 527-35.) Representatives from PaDEP attended the meeting in June 17, 2013. (AR-27 at 273.)

a. *Admitted.*

60. The Agencies complied comment response documents for comments received on the purpose and need and the Existing Structure Conditions Evaluation Report on September 10, 2013, on the Determination of Effects Report in June 13, 2016, and on the minimization and mitigation proposed for the Historic District in April 14, 2017. (AR-8; AR-13; AR-22.)

a. *Admitted.*

61. The public officials' meetings and public meeting were held on the following dates: September 6, 2005. June 16&17, 2008, October 28, 2013, and July 30, 2014 (AR-26 at 84-86; AR-12 at 64-65.)

a. *Admitted*

62. Meetings were held with PaDEP, USACE, PHMC, and NPS to discuss the required permits for the Project on December 15, 2011, May 11, 2012, and September 19, 2012. (AR-31 at 18-21; 102-05; 296-301.)

a. *Admitted.*

63. In response to the comments received during the project development, the Agencies conducted the following additional analysis: a Preliminary Hydrologic and Hydraulic Study, a Core Drilling Investigation, a Bridge

Width Evaluation, and an Updated Turning Movement Study. 9AR-9, AR-10, AR-31 at 106-83; AR-28 at 39-48.)

- a. *Admitted.*
- b. *Plaintiffs do not have knowledge of whether the Agencies conducted these studies as a result of comments received, and the Agencies provide no proof thereof.*

64.DRN and its consultants submitted reports and numerous comments. The Agencies considered the DRN reports and comments and responded to many of the DRN's comments. (E.g. AR-8 at 1-6, 11-29, 39-40, 41-43; AR-14 at 2-8, 11-16, 29-38, 52-57; AR-22 at 4-5 AR-24 at 37-46.)

- a. *Admitted.*

65.Whether the bridge can be rehabilitated and disagreement with the project needs are engineering disputes.

- a. *Denied.*
- b. *There is no disagreement or question as to whether the Bridge can be rehabilitated, PennDOT admitted that it can be rehabilitated if Tinicum Township takes responsibility for the maintenance of the Bridge. See FHWA Statement of Facts at ¶ 19(c)(ii). The primary "disagreement" is over how much maintenance PennDOT is willing to take responsibility for.*

66. The Agencies provided a 45 day public comment period and held a public hearing to receive comments on a Draft CE Evaluation (AR-26 at 85.). The Draft CE Evaluation was made available for review at the Township building, the local library, the Tinicum Conservancy, Buck County Conservation District, and PennDOT district office and was available on-line via the project path website. (AR-29 at 331.) The PennDOT advertised the comment period and the public hearing in the local newspapers. And the consulting parties, individually, were sent notices of the comment period and public meeting. (AR-29 at 331.)

a. *Admitted.*

67. The Agencies also considered the comments received from consulting parties and addressed the comments through the Section 106 process. (AR-8; AR-14; AR-22.)

a. *Admitted.*

b. *Admitted to the extent that the “fact” only reflects the Agencies received comments and responded to them. By way of further answer, Plaintiffs allege that Defendants’ failed to provide legally sufficient answers to many of the issues raised.*

68. After review and consideration of the comments received on the CE Evaluation, clear responses to environmental concerns raised in the CE

Evaluation are also provided in the comment response document for the CE.

(AR-24.)

- a. *Admitted.*
- b. *Admitted to the extent that Defendants provided “responses” that were disputed by Plaintiffs.*

Consistency with Federal, State, and Local Laws.

69. After the rehabilitation alternative did not appear to be prudent, PennDOT scheduled several permit pre-application meetings with PaDEP, USACE, NPS, and PHMC. (AR-31 at 18-21; 102-05; 296-301.) The goal of the pre-application meetings was to determine the design criteria that would be acceptable to the permitting for a replacement bridge. (AR-31 at 18, 102, 296.)

- a. *Denied.*
- b. *There is no statement in the sections of the record cited by PennDOT indicating that “PaDEP” had a “requirement” that a replacement “should improve the condition of the Creek.” PennDOT Statement of Facts at ¶ 70. By way of further response, the “preliminary” Hydrologic and Hydraulic Report specifically recommended an alternative that “closely resembles the existing Bridge” and included three spans and whose piers are at “similar locations” to the existing*

piers. AR-31, pg. 37. The Hydrologic and Hydraulic Report was generated and completed to address “replacement bridge” concerns, and not rehabilitation. See PennDOT statement of Facts, at ¶ 70.

70. The first preliminary Hydrologic and Hydraulic Report was completed following the December 2011 meeting to address PaDEP’s requirement that a replacement bridge should improve the condition of the Creek. (AR-31 at 34-101.) This report was updated in June of 2012. (AR-31 at 106-282.)

a. *Admitted.*

b. *Admitted to the extent that the Hydrologic and Hydraulic Report was specifically generated to examine issues with bridge replacement and not rehabilitation.*

71. At the December 15, 2011 and the May 11, 2012 pre-application meetings, PaDEP opposed a three-span replacement bridge and stated that the following should be considered in designing the bridge: minimizing encroachments in the stream, improving the movement and migration of aquatic species, abutments should be located outside the normal stream banks, and the existing conditions in the stream should be improved. (AR-31 at 20, 103-04.) PaDEP accepted the recommendation to construct a two-lane, two-span bridge and recommended stormwater best management practices to mitigate impacts to the exceptional value stream. (AR-31 at 298, 300.)

- a. *Admitted.*
- b. *The “fact” makes clear that “PaDEP” only opposed a three-span replacement, and that nothing in the statement of “fact” or the record reflects whether PaDEP opposed rehabilitation of the existing Bridge.*

72. PaDEP, USACE, and NPS participated in the consulting party meetings which were held to satisfy Section 106 of National Historic Preservation Act. (AR-27 at 271-78, 334-39, 430-38, 527-35.) PennDOT also provided the permitting agencies with the draft CE Evaluation for review and comment. (AR-24 at 140-41.) In their comments, the permitting agencies did not state any inconstancies with State or Federal laws. (AR-24 at 135-42.)

- a. *Admitted.*

The Project’s Section 4(f) Evaluation

73. Valley Ridge Rural Historic District is the only resource subject to the Section 4(f) analysis. (AR-27 at 18-22.)

- a. *Denied.*
- b. *Both Tinicum Creek and the Bridge itself are 4(f) resources. The National Park Service in an “official reply” to PennDOT and FHWA found that while waterways are not generally found to be historic resources, “[t]he fact that Tinicum Creek is surrounded by the Ridge Valley Rural National Historic District (NHD) and that the*

*Headquarters Road has been determined by the Keeper of the National Register (2006) to be a contributing resource of the Ridge Valley Rural NHD is sufficient to designate this project and Tinicum Creek Wild an Scenic River Under FHA 4F.” AR-51, pg. 1469. 23 C.F.R. §774.11(e) states that “[t]he Section 4(f) requirements apply to historic sites on or eligible for the National Register unless the Administration determines that an exception under § 774.13 applies.” 23 C.F.R. §774.11(e). There is no question that the Bridge is “eligible for the National Register” as contemplated by the regulation. AR-14, pg. 103; see also PennDOT Br. at 9, ¶ 38 (“the bridge is eligible . . . to the National Register”); FHWA Br. at 14 (“Unquestionably, the Bridge enjoys Section 4(f) protection”). Additionally, on August 13, 2015, Plaintiffs submitted a letter to the FHWA explaining that for the purposes of the FHWA and PennDOT’s review of the Bridge Project, the “Headquarters Road Bridge itself is a 4(f) property.” AR-52, pg. 199. The FHWA responded on August 26, 2015, agreeing with Plaintiff’s assessment, stating that “[t]he Headquarters Road Bridge over Tinicum Creek is a contributing resource to the Ridge Valley Rural Historic District. **Accordingly, it is subject to the requirements of Section 4(f).**” AR-52, pg. 343 (emphasis added). The FHWA’s*

*letter further clarified that “[t]he individual[] eligibility of the bridge would not influence how the FHWA or the Pennsylvania Department of Transportation (PennDOT) is complying with the related requirements.” Id. In recognition of this reality, the Final Categorical Exclusion Evaluation unequivocally stated that “the Ridge Valley Rural Historic District **and its contributing resources []the Headquarters Road Bridge . . . are considered Section 4(f) resources.**” AR-26, pg. 75 (emphasis added).*

74. Like the selected alternative (the two-lane replacement bridge), the rehabilitation alternatives also would result in the use of the Historic District under Section 4(f) through the replacement of the bridge’s superstructure, abutments, and wing walls and minor property takes from contributing properties adjacent to the bridge. (AR-27 at 48, 56, 80-81).

a. *Admitted.*

75. The one-lane rehabilitation alternative (Alternative 3) was not a prudent alternative because it does not satisfy the project needs, results in unacceptable safety issues, and results in operational problems. (AR-27 at 43-47.) Per PennDOT’s Design Manual – 2 and the American Association of State Highway and Transportation Officials’ (AASHTO’s) standards, a bridge width of less than 24 feet curb-to-curb is not permissible on this type

of roadway. (AR-10 at 24; AR-27 at 43, 46.) Alternative 3 does not meet this width criteria and does not meet the functionally obsolete need. To document that the one-lane bridge does not adequately address the project purpose and need, Urban Engineers, PennDOT's expert, prepared a Bridge Width Evaluation memo. (AR-10; AR-27 at 49.) FHWA agreed with the determination outlined in this Evaluation that a one-lane bridge would not meet the project purpose and need given the inapplicability of the one-lane bridge criteria under both AASHTO and PennDOT design criteria. (AR-11; AR-27 at 49.)

a. *Denied.*

b. *A rehabilitated Bridge can meet the purpose and need of the Project and is a prudent alternative. AR-24, pgs. 272-296; AR-53, pgs. 507 – 508; AR-53, pgs. 548-551. There is no site specific safety issued related to the historic width of the Bridge. AR-53, pgs. 575 – 587 and 674 – 687 and 716-720. The historic width of the Bridge is not the cause of any of the accidents near the site of the Bridge, as such, there is no site specific safety problem based on the geometry of the historic width of the Bridge. See AR-53, pgs. 575 – 587 and 674-687; AR- 54, pgs. 105 – 108. AASHTO guidelines are not binding rules or standards, and therefore do not state or otherwise require that a*

bridge width of less than 24 feet curb-to-curb is “not permissible” on this type of roadway. See infra ¶ 76. PennDOT concedes that the purpose of the Bridge Width Evaluation was to “document that a one-lane bridge does not adequately address the purpose and need,” as opposed to its stated purpose of reviewing “whether the purpose and need of Headquarters Road Bridge over Tinicum Creek project can be met by providing a one-lane bridge.” AR-10, pg. 1. PennDOT’s “fact” therefore admits to harboring an express bias with regard to the purpose of the evaluation.

76. AASHTO is an international leader in setting technical standards for all phases of highway system development. Standards are issued for design, construction of highways and bridges, materials, and many other technical areas.

- a. *Admitted.*
- b. *Admitted to the extent that none of the AASHTO standards are codified as requirements, rather, the AASHTO standards are merely flexible guidelines. Specifically, the AASHTO “Green Book” – A Policy on Geometric Design of Highways and Streets – is, as the name implies, a set of policy guidelines, not a rulebook. American Association of State Highway and Transportation Officials, A Policy*

on Geometric Design of Highways and Streets, 7th Edition, 2018, available at <https://store.transportation.org/item/collectiondetail/180>.

In fact, the “Green Book” specifically calls upon its users to recognize the importance of flexibility in applying its guidelines:

Often, reconstruction projects are limited in scope or available funding, or may be affected by physical constraints or social or environmental considerations. In some locations, especially constrained locations, designing to the criteria recommended herein simply is not feasible. Adaptive, flexible, and cost-effective designs customized to each project context are encouraged. Flexibility in the application of design criteria herein is recommended to encourage a sustainable approach to highway design decision making by weighing and balancing choices among the environmental, economic, and social aspects while meeting the project’s performance objectives.

*Id. at lvi. Furthermore, these guidelines make clear that: “[t]his document is intended as a comprehensive **reference manual** to assist in administrative, planning, and educational efforts pertaining to design formulation.” Id. (emphasis added). This policy **is not intended to be a prescriptive design manual** that supersedes engineering judgment by the knowledgeable design professional. Id. (emphasis added). Finally, the policy book “also encourages **flexible design**, which emphasizes the role of the planner and designer in determining appropriate design dimensions based on project-specific*

conditions and existing and future roadway performance more than on meeting specific nominal design criteria.” Id.

Additionally, PennDOT’s Design Manual itself explicitly recognizes the importance of flexibility in the use of design standards:

An important concept in highway design is that every project is unique. The setting and character of the area, the values of the community, the needs of the highway users, and the challenges and opportunities are unique factors that designers must consider with each highway project. Whether the design to be developed is for a safety improvement or several kilometers (miles) of rural freeway on new location, there are no patented solutions. For each potential project, designers are faced with the task of balancing the need for the highway improvement with the need to safely integrate the design into the surrounding natural and human environments.

Pennsylvania Department of Transportation, Design Manual Part 2, Highway Design, 2015 edition, Publication 13-M, DM-2, pgs. 1-3, available at <https://www.dot.state.pa.us/public/Bureaus/design/PUB13M/Chapters/TOC-2.pdf>. The Design Manual also makes clear that:

[a]nother important concept in highway design is the development of Context Sensitive Solutions (CSS). CSS is a collaborative, interdisciplinary approach that involves all stakeholders to develop a transportation facility that fits its physical setting and preserves scenic, aesthetic, historic, and environmental resources, while maintaining safety and mobility. Context sensitive design is an approach that considers the total context within which a transportation improvement project will exist.

Id. at 1-3.

77. The one-lane rehabilitation alternative cannot accommodate the emergency service vehicle, nor would it address the sight distance and horizontal curve radius issues with the western approach. (AR-27 at 49.)

a. *Denied.*

b. *PennDOT directly contradicts its own “fact” in its prior statements.*

*For example, PennDOT has already explicitly conceded, “it is true that a wider bridge is **not necessary to accommodate fire company operations.**” AR-14, pg. 15 (internal quotations omitted) (emphasis added). There could not be a more clear refutation of PennDOT’s alleged “fact.” By way of further response, the record is clear on this issue and shows that the proposed rehabilitated Bridge can accommodate all emergency service vehicles, including the largest fire response vehicle in Tinicum Township – Ladder 49 of the Ottsville Volunteer Fire Company. See AR-53, pgs. 412 -413, 725 – 726, 731 – 732. Indeed, this 41.5-foot ladder truck continuously operated across the Headquarters Road Bridge when it had a “10-foot cartway,” and could therefore easily navigate the proposed rehabilitated 16-foot Bridge. AR-53, pg. 724. The report specifically concludes that a “wider bridge is not necessary to accommodate fire company*

operations.” AR-53, pg. 725. PennDOT provides no evidence of any examples or events whereby the ladder truck was prevented from completing its operations as a result of the historic width of the Bridge. Id.

78. While the abutments are to be reconstructed with this rehabilitation alternative, the original piers remain. (AR-27 at 49.) The original piers were not designed for modern loadings and their reconstruction may still require a posted weight limit as the pier capacity will potentially govern the structure rating, thus, it does not meet the structurally deficient need. (AR-27 at 49.)

a. *Denied.*

b. *PennDOT states that to “support” its position regarding the loading capacity of the piers it “reviewed” the Architect’s and Builder’s Pocket Book, 1st Edition 1884, by Frank E. Kidder. This version was superseded by later versions as technology was developed, including a 1942 version, “which contains much more updated and authoritative information on allowable rubble stone masonry stresses that are similar to those found in building codes or AASHTO.” AR-57, pgs. 382- 384. The later 1942 edition of Kidder’s Pocket Book, provides a safe allowable load of 100 psi for “Rubble Stone” in “Cement lime mortar.” Id. This “value is similar to the AASHTO*

*Manual for Condition Evaluation of Bridges value of 100 psi for rubble stone in type N mortar.” Id. According to PennDOT’s response, they calculated that the applied loads in the piers for a new prestressed concrete superstructure with HS-20 loading exceeded the allowable stresses of 13.89 psi by 80%. This means that the PennDOT calculated HS-20 applied stress equals $13.89 \text{ psi} \times 1.8 = 25.00 \text{ psi}$. Id. PennDOT’s “calculated applied stress of 25.00 psi is four times less than the 1942 Kidder and AASHTO values of allowable stress.” Id. (emphasis original). It is even 38% less than the conservative 1886 Kidder value of 34.72 psi. Id. **The stress in the piers is well within the acceptable limits.** Id. (emphasis added).*

79. The two-lane rehabilitation alternative (Alternative 4) was not prudent based on the following. The reconstruction of the piers has limitations since the original piers remain and they were not designed to carry modern loads. (AR-27 at 57.) The stone masonry in the lower portions of the piers is susceptible to continued mechanical weathering. (AR-27 at 57.) The bridge width is less than 24 feet curb-to-curb which is not permissible for this type of roadway. (AR-27 at 57.) This alternative does not fully address the structurally deficient need and does not meet the functionally obsolete need. (AR-27 at 57.) Finally, a turning radius study on the two-lane rehabilitation

alternative shows that the largest Tinicum Township fire truck would require two turn movements to make a turn at the T-intersection and would still require the truck to veer into oncoming traffic. (AR-27 at 52, 57.) Therefore, this alternative does not address the need to safely and efficiently accommodate emergency response vehicles.

a. *Denied.*

b. *See supra* ¶75.

80. While the initial costs for both rehabilitation alternatives are expected to be less than the initial costs for replacement, life cycle costs will be greater with rehabilitation, as regular maintenance would be required to preserve the original stone material in the substructure. (AR-27 at 54.)

a. *Admitted.*

b. *Admitted to the extent that PennDOT concedes that the only factor preventing the rehabilitation of the Bridge is Tinicum Township taking responsibility for the maintenance costs of the Bridge. See FHWA Statement of Facts at ¶ 19(c)(ii). Furthermore, AR-27 does not include, or otherwise examine, the cost of maintaining the salvaged stone veneer PennDOT proposes using in the proposed replacement. However, the analysis does consider such costs in the rehabilitation analysis. As such, the life cycle costs of rehabilitation and*

replacement are likely much closer than the \$500,000 represented by PennDOT.

81. The findings related to the rehabilitation alternatives are substantiated by the Existing Structure Condition Evaluation Report dated November 2006 which detailed the condition of the bridge, the Bridge Width Evaluation dated April 2015, the Core Drilling Investigation, the turning movement analysis, and cost estimates. (AR-5; AR-9; AR-10; AR-28 at 39-48; AR-27 at 199-217.)

a. *Denied.*

b. *PennDOT's "fact" contains nothing more than self-serving conclusory legal argument by counsel.*

82. Looking at the ability of the alternatives to meet the project need, the benefits to Tinicum Creek, the ability to mitigate the adverse impacts to the Historic District, and the views of the PHMC and ACHP the officials with jurisdiction over historic resources, the two-lane replacement on the existing alignment results in the overall least harm. (AR-27 at 80.)

a. *Denied.*

b. *PennDOT's "fact" contains nothing more than self-serving conclusory legal argument by counsel. By way of further response, destroying a 4(f) property does not result in the least overall harm to*

the 4(f) property. 23 C.F.R. § 774. Rehabilitation would result in the least overall harm, as it preserves the 4(f) resource. 23 C.F.R. § 774. PennDOT never “carried into the least harm analysis” an examination of rehabilitation. See infra, PennDOT Statement of Facts, at ¶ 88.

83. The two-lane replacement alternative addresses all the project needs. (AR-27 at 66-67, 80.) Unlike the rehabilitation alternatives, the two-lane replacement alternative addresses the superstructure and substructure structural deficiencies thus improving the load carrying capacity of the bridge. (AR-27 at 66.) This alternative also improves the operational efficiency of the bridge by providing a two-lane bridge meeting the PennDOT and AASHTO requirements for the traffic volume on the bridge. (*Id.*) Widening the bridge deck improves the sight distances and improves the turning movements to and from the bridge onto Sheep Hole Road including emergency vehicles unlike the rehabilitation alternatives. (AR-27 at 63).

a. *Denied.*

b. *Rehabilitation also meets the superstructure and substructure structural needs of the Project. See, e.g., AR-12; AR-18; see also supra, at ¶ 78. The turning movements can also be addressed by the*

rehabilitation alternative. See AR-17, pgs. 25-30. Furthermore, the Chief of the Volunteer Fire Company, Chief Shick, expressed that he does not have a preference for a one-lane or a two-lane bridge for purposes of moving his largest piece of equipment, Ladder 49, across Tinicum Creek. See AR-53, pgs. 412, 446, 465, 507, and 584. Site distance can similarly be addressed by the rehabilitation alternative. For example, a stop sign in advance of the bridge on the western approach would resolve the sight distance issue, while improved road markings and signage should reduce the incidence of run-off-the-road events and other problems that might be associated with horizontal curves and grades near the bridge. AR-17, pgs. 1-24. By way of further response, AASHTO guidelines are in no way “requirements.” See supra at ¶ 76.

84. The two-lane replacement alternative will benefit the stream by removing a pier and the abutments from the stream’s floodway. (AR-27 at 61.) This alternative will significantly minimize obstructions within the stream compared to the rehabilitation alternatives. (*Id.*) The elimination of obstructions would significantly reduce the accumulation of debris during high flood events and reduce the scour issues. (*Id.*)

a. *Denied.*

b. *The replacement bridge will not benefit the stream. See supra ¶20.*

85. Turning to the impacts to the Historic District, itself, the two-lane replacement alternative requires the removal of the existing bridge (superstructure, wing walls, and substructure) and property from two adjacent parcels which are contributing elements to the Historic District totaling 0.15 acres for wing wall reconstruction. (AR-27 at 64-65.)

a. *Admitted.*

86. The Project includes all reasonable measures to minimize harm to the Historic District including the creation of a Design Advisory Committee (DAC) to review project plans and specifications and provide feedback on aesthetic elements during the final design of the Project and during construction. (AR-27 at 77-78; AR-25 at 3-4.) During construction, stone from the existing structure's masonry components will be salvaged for use in the proposed structure. (*Id.*) The existing plaque will be retained and incorporated into the recommended preferred alternative. (*Id.*) PennDOT will construct a bridge with the minimum allowable roadway width, in accordance with the applicable design standards, within the same approximate footprint as the existing bridge. (*Id.*) Rock Scour protection surrounding the bridge abutments will be choked with top-soil and seeded with a riparian seed mix to minimize, to the extent possible, visible rock.

(*Id.*) Finally, PennDOT will develop and construct a physical display or a content for web publication on the history and historic significance of the Historic District including information on the bridge. (*Id.*)

a. *Denied.*

b. *PennDOT's "fact" contains nothing more than self-serving conclusory legal argument by counsel. See supra ¶ 45; see also AR-52, pgs. 213 – 227; AR-57, pgs. 347-356.*

87. PHMC and ACHP signed the Memorandum of Agreement agreeing that the mitigation detailed in the Agreement would address the adverse effect on the Historic District. (AR-25 at 1, 8.)

a. *Denied.*

b. *Both documents cited by PennDOT only address whether the proposed mitigation is appropriate to address impacts to the 4(f) property of the Historic District as a whole but say nothing regarding the adverse impact to the 4(f) property of the Bridge itself. Additionally, the proposed mitigation efforts will not mitigate the adverse impact to the Historic District. See supra ¶45. Furthermore, there was no statement made by any of the parties that the proposed mitigation would be legally sufficient to address the adverse impacts to the Historic District. AR-25.*

88. The rehabilitation alternatives are not prudent alternatives, and therefore, would not be carried into the least harm analysis.

a. *Denied.*

b. *The rehabilitation alternative is prudent. See supra ¶ 75 and ¶ 79.*

The “least overall harm” requires a review of the preservation of the 4(f) property, therefore, rehabilitation should have been “carried into the least harm analysis.” 23 C.F.R. § 774.

89. Even if the rehabilitation alternatives were considered in the least harm analysis, the rehabilitation alternatives do not result in the overall least harm under the factors set forth in Section 774.3(c)(1).

a. *Denied.*

b. *PennDOT’s “fact” contains nothing more than self-serving conclusory legal argument by counsel. The “statute’s **preservation purpose,**” would be served by preserving the 4(f) property, here the Bridge. 23 C.F.R. § 774.3(c) (emphasis added).*

90. The one-lane rehabilitation alternative would involve the replacement of the bridge superstructure and the reconstruction of the abutments and wingwalls and 0.06 acres from an adjacent contributing property for the reconstruction of the wing wall. (AR-27 at 46, 47, 67.) This alternative would still remain functionally obsolete because it would remain one lane of travel and would

remain structurally deficient because the piers were not designed for modern loads so the bridge would require a posted weight limit. (AR-27 at 67.) Finally, this alternative would continue to impact the free-flowing nature of Tinicum Creek because an additional pier and the encroachments would remain in the stream channel. (*Id.*)

- a. *Denied.*
- b. *PennDOT's statements with regard to weight limits are self-contradictory and inaccurate. Here, PennDOT's "fact" that rehabilitation "would" require a posted weight limit contradicts the earlier statement that rehabilitation "may" require a posted weight limit. PennDOT Statement of Facts, at ¶ 78. Nevertheless, rehabilitation would not require a posted weight limit. See, e.g., AR-12; AR-18; see also supra ¶ 78. A one lane rehabilitated Bridge would not be functionally obsolete. See supra ¶ 76 and ¶ 77. Tinicum Creek's free flowing nature would not be adversely impacted by rehabilitating the existing Bridge. See supra ¶ 20. The National Park Service has found that the "larger picture at the site, however, demonstrates overall long-term stability of the stream channel, with mature hardwoods lining streambanks both above and below the bridge. AR-57, pg. 33 (emphasis added).*

91. The two-lane rehabilitation alternative would remove the bridge superstructure, both abutments, and the wing walls and the reconstruction of the piers and require 0.009 acres from two adjacent contributing properties for the construction of the wing walls. (AR-27 at 50, 56, 67.) The reconstruction of the piers and abutment has limitations since the original piers remain and were not designed to carry modern loads so this alternative does not fully address the structurally deficient need. (AR-27 at 67.) This alternative would continue to impact the free-flowing nature of Tinicum Creek since the obstructions in the Creek will remain. (AR-27 at 67.)

a. *Denied.*

b. *Plaintiffs deny this statement to the extent that PennDOT asserts that the piers cannot carry “modern loads.” See supra ¶ 78. Also, the existing sites of the piers and abutments do not impact the free-flowing nature of Tinicum Creek. See supra ¶ 90.*

Maintenance of the Bridge

92. Throughout PennDOT’s ownership of the Headquarters Road Bridge, the bridge has been inspected in accordance with National Bridge Inspection Standards on a routine basis (a minimum of every two years). (AR-14 at 51.) These inspections ensure that the bridge remains safe for vehicular use and recommends maintenance activities to address issues that may impact public

safety. (*Id.*) These recommended maintenance activities are given priority codes to indicate the urgency of the repair. (*Id.*)

a. *Admitted.*

93. Over the course of the life of the Headquarters Road Bridge, repairs were made when possible to keep the bridge open. In 2001, an impact to the guide rail resulted in a failure of the anchorage of the steel beam guide rail. (AR-14 at 96.) Two-foot-wide jersey barriers were installed along the curb lines on each side of the bridge. (AR-14 at 96.) Maintenance records for the bridge indicate that between 2005 and 2011, maintenance of the bridge continued including repairs to bridge parapets, repointing of masonry, sealing of the deck joint, bituminous repair work, concrete deck repair, and repair of wingwall. (AR-14 at 21, 51.) In March of 2011, the bridge was closed to traffic when a large hole was found in the deck which could not be repaired during a routine inspection of the bridge. (AR-14 at 21.)

a. *Admitted.*

b. *Admitted to the extent that Plaintiffs do not dispute that PennDOT only performed maintenance “when possible.”*

Completion of the NEPA Review

94. The Memorandum of Agreement was completely executed on August 7, 2018. (AR-25 at 8.)

a. *Admitted.*

95. On August 21, 2018, FHWA found the Final Section 4(f) Evaluation to be legally sufficient. (AR-26 at 76.)

a. *Admitted.*

96. On September 24, 2018, FHWA approved the Categorical Exclusion Evaluation for the two-lane replacement bridge alternative. (AR-26 at 3, 97.)

a. *Admitted.*

**DELAWARE RIVERKEEPER NETWORK’S RESPONSE TO FHWA’S
STATEMENT OF FACTS AND COUNTER STATEMENT OF FACTS**

1. Delaware Riverkeeper Network (“DRN”) is a plaintiff herein. Complaint (“Compl.”) ¶ 1. DRN is an advocacy organization whose mission is to protect and restore the Delaware River and its tributaries, habitats, and resources. Compl. ¶ 9.

a. *Admitted.*

2. Maya van Rossum is a plaintiff herein. She is the Delaware Riverkeeper who advocates for the protection of waterways in the Delaware River Watershed. Compl. ¶ 14.

a. *Admitted*

3. PennDOT is an agency of the Commonwealth of Pennsylvania. It oversees programs and policies affecting highways, urban and rural public transportation, and state and local bridges, airports, roads, ports, and waterways. Compl. ¶ 17.

a. *Admitted*

4. FHWA is a defendant herein. It is an agency in the United States Department of Transportation. FHWA provides stewardship over the construction, maintenance, and preservation of the nation’s highways. Bridges, and tunnels, and provides funding assistance to the states by

reimbursing them for costs incurred on eligible projects. Compl. ¶ 19; 23 U.S.C. §§ 101, 104.

a. *Admitted.*

5. The Bridge is located in the Ridge Valley Rural Historic District ("Historic District"). By letter dated April 28, 2006, the Keeper of the National Register of Historic Places, a program of the United States Department of the Interior, listed the Bridge as a "contributing" element to the Historic District. AR-4. The Historic District covers 575 acres of land and contains 67 contributing elements of which the Bridge is only one. AR-27, pg. 18; AR-1, pg.4. The Bridge is not listed in the National Register on its own merits. AR-27, pg. 255.

a. *Admitted.*

6. The Bridge crosses Tinicum Creek. AR-27, pg. 7. Tinicum Creek is not listed in the National Register as a contributing element to the Historic District. AR-27, pg. 22.

a. *Denied.*

b. *Tinicum Creek is a 4(f) resource because Tinicum Creek has been found by the National Park Service as a historic resource. The National Park Service in an "official reply" to PennDOT and FHWA found that while waterways are not generally found to be historic*

resources, “[t]he fact that Tinicum Creek is surrounded by the Ridge Valley Rural National Historic District (NHD) and that the Headquarters Road has been determined by the Keeper of the National Register (2006) to be a contributing resource of the Ridge Valley Rural NHD is sufficient to designate this project and Tinicum Creek Wild and Scenic River Under FHA 4F.” AR-51, pg. 1469.

7. Efforts to evaluate the status of the Bridge and to develop or "scope" the Project began in 2005. AR-3, pg. 3.

- a. *Admitted.*

- b. *Admitted to the extent that as early as 2005 the agencies stated that, “This is a bridge **replacement** project.” AR-3, pg. 3 (emphasis added); see also id. at 9, 17, 31.*

8. In April 2005, representatives of PennDOT, FHWA, and other state agencies met to discuss the Project. AR-20, pg. 55; AR-3, pg. 2. At that time, federal funds were not available.

- a. *Admitted.*

9. In September 2005, members of the public attended a meeting and expressed concerns about the loss of the Bridge. AR-29, pgs. 3, 8-13.

- a. *Admitted.*

10. In October 2005, the United States Army Corps of Engineers ("USACE") was identified as the lead federal agency. AR-39, pgs. 138, 143.

a. *Admitted.*

11. On August 14, 2006, PennDOT had the first of seven so-called Section 106 "consulting party" meetings. AR-27 pgs. 85 -87.

a. *Admitted.*

12. Consulting parties are individuals and organizations with a demonstrated preservation interest in an undertaking, such as the instant Bridge Project. Consulting parties typically include state, local, and sometimes national advocacy groups. DRN is a consulting party. AR-23, pgs. 220-221.

a. *Admitted.*

13. A total of seven consulting party meetings were held in 2006, 2008, 2010, 2013, 2014, and 2016. AR-27, pgs. 85-87. The consulting parties participating included, inter alia, the plaintiffs; the FHWA; PennDOT; the National Park Service; USACE; the Pennsylvania Department of Environmental Protection ("PaDEP"); the Advisory Council on Historic Preservation ("ACHP"), an independent federal agency that promotes the preservation of historic resources and advises the President and Congress; the Pennsylvania State Historic Preservation Officer ("SHPO"); the Pennsylvania Historical and Museum Commission ("PHMC"), which serves

as the SHPO; Tinicum Township officials; elected federal and state officials; and other members of the public. AR-27, pgs. 85-87, 221-561(Appendix F, Consulting Party Meeting Minutes).

a. *Admitted.*

14. Local residents have stressed to PennDOT the need for a bridge to provide a crossing along Headquarters Road, citing, among other reasons, an increase in response time for emergency service vehicles. AR-27, pgs. 84, 325, 329-330, 502-506; AR-29 pgs. 216, 218, 226, 227, 231, 241, 244, 246, 274, 289, 297; AR-57, pg. 4.

a. *Admitted.*

15. In January 2013, federal money was set aside for the Project. At that time, FHWA replaced the USACE as the lead federal agency on the Bridge Project. AR-44, p. 43.

a. *Admitted.*

16. In December 2013, the ACHP agreed to participate in the historical preservation process under the National Historic Preservation Act, 54 U.S.C. § 306108 (formerly codified at 16 U.S.C. § 4700 and its implementing regulations, "Protection of Historic Properties" (36 C.F.R. Part 800). AR-47, pg. 1682.

a. *Admitted.*

17. In 2015, a study undertaken at the request of FHWA, authored by Urban Engineers, Inc., a consulting firm, and styled "Bridge Width Evaluation," concluded that a one-lane bridge would not satisfy the needs of the Project. AR-10, pgs. 4, 14.

a. Admitted.

b. Plaintiffs admit this "fact" only to the extent that the "fact" represents the "conclus[ion]" of the study, not for the truth of the matter asserted.

18. In November 2016, a draft "categorical exclusion" under the National Environmental Policy Act ("NEPA") and related regulations was made available for public and agency review. AR-20. A Categorical Exclusion differs from an environmental assessment or an environmental impact statement in the type of documentation and the amount of public review. All three reports include the same level of analysis to identify resources and the impact on those resources. For the Headquarters Road Bridge project, the level of public review was the same as that required by an environmental assessment since a public hearing was held and the Draft Categorical Exclusion Evaluation was made available for public review and comment. AR-59, pgs. 107-108; 442-443.

a. Denied.

b. FHWA's "fact" contains nothing more than self-serving conclusory legal argument by counsel, and is nevertheless wrong on basic hornbook concepts of statutory NEPA law. An Environmental Assessment, Environmental Impact Statement, and Categorical Exclusion do not include the same level of analysis to identify resources and the impact on those resources. Environmental Impact Statements are required to have components that thoroughly identify and analyze the potential environmental issues for a proposed action. These include: a summary of the project, identification of the major environmental impacts, a purpose and need statement, a list of alternatives, identification of the affected environment, and an analysis of the projected environmental consequences. 40 C.F.R. § 1502. Further, agencies must discuss environmental impacts of proposed actions "in proportion to their significance." 40 C.F.R. § 1502.2(b). Environmental Assessment generally contains a brief discussion of the need for the proposal, an analysis of alternatives to the action, and a compilation of the environmental impacts of the proposed action and alternatives. 40 C.F.R. § 1508.9. A Categorical Exclusion analysis is distinct from an Environmental Impact Statement and Environmental Assessment because it seeks to show

why the project should be excluded from NEPA review. 40 C.F.R. 1508.4. These assessments generally include a brief project description, a map showing the project footprint and identifying surrounding features, and a summary of impacts and project design features, including what measures have been taken to minimize or eliminate impacts.

*Similarly, the “level of public review” was not the same “as that required by an environmental assessment.” Regulations require a draft EIS to be circulated for public comment prior to adopting it. See 40 C.F.R. §§ 1502.9, 1503.1. Whereas for a categorical exclusion, most federal agencies do not routinely notify the public. Council on Environmental Quality, *The National Environmental Policy Act – Guidance on Categorical Exclusions*, Published September 19, 2006, page 54820. If the situation is one of high public interest the Council on Environmental Quality simply encourages that federal agencies involve the public in some manner. Id.*

19. In 2018, PennDOT commissioned A.D. Marble, an environmental engineering consulting firm, to do a "section 4(f)" evaluation. AR-27. Under Section 4(f), now codified as 49 U.S.C. Section 303, FHWA may approve the "use," as defined in 23 C.F.R. Section 774.17, of properties known as "Section 4(f) property", e.g., for purposes of this case, the Historic District, only if 1) there is no avoidance alternative to the use of land from the property, and (2) the project includes all possible planning to minimize harm

to the property resulting from the use. The evaluation, published in August 2018, concluded, inter alia, that the Bridge was: (1) structurally deficient; (2) functionally obsolete; and (3) unable -- safely and effectively -- to accommodate current and future traffic needs, including emergency response vehicles. AR-27, pg. 16. More specifically, the report stated:

A. The purpose of the Project is to provide a crossing for Headquarters Road over the Tinicum Creek that is structurally sound and can safely and effectively handle the needs of the public and emergency services in the surrounding area. AR-27, pg. 15. The Bridge, in its present condition, cannot accommodate these needs. Id. The report discussed the following possible solutions:

B. Alternatives That Avoid all Sections 4(f) Properties. AR-27, pg. 9,23; AR-12, pg. 16:

i. No Build Alternative. Under this alternative, the Bridge would remain closed to traffic indefinitely and would continue to deteriorate. Local residents have raised concerns in public and consulting party meetings that the township's transportation network is strained by the closing and that the closing has deterred home sales and depressed property values. The No Build Alternative is not prudent because it does not meet the needs of the Project. AR-27, pgs. 26, 33 -35; AR- I 2, pgs. I 6-1 7

ii. New Roadway That Avoids The Historic District. The cost of this alternative is estimated to be in the range of \$10-15 million dollars as a result of an additional 1.67 miles of roadway and two stream crossings, \$6-11 million dollars more than the cost of other alternatives. In addition, this alternative would have an injurious impact on wildlife habitat, wetlands, farm lands, and forested lands and would involve two new waterway encroachments. Further, the Bridge would remain closed indefinitely and would continue to deteriorate. Accordingly, this alternative is not deemed reasonable or prudent. AR-27, pgs. 26, 35-38; AR-12, pgs. 17 -20.

C. Other Alternatives

i. New Alignment Downstream. The Bridge would remain in place, continue to deteriorate, and would eventually need to be removed. This alternative would require the construction of a new section of roadway, as well as the addition of a modern element -- a new bridge -- both of which would alter the historic setting that is the character-defining feature of the Historic District. This alternative would have a so-called Section 106

adverse effect on the Historic District. *See* 23 U.S.C. § 138(b)(2)(A)(i) & 49 U.S.C. § 303(f)(2) (protection of historic sites) and Memo. Of Law, *infra*. The alternative was not deemed reasonable or prudent because of: (1) substantial impact to nearby properties through a right-of-way acquisition; (2) the addition of another encroachment on Tinicum Creek; (3) a likely need to require the concurrence of FEMA; and (a) and significant engineering and construction costs (\$1.5 million dollars more than other replacement alternatives), this alternative was not deemed reasonable or prudent. AR-27, pgs. 26, 39-42; AR- 12, pgs. 20-23.

ii. One-Lane Bridge Rehabilitation. This alternative would not meet PennDOT's criteria, nor the criteria of the American Association of State Highway Transportation Officials ("AASHTO"); it does not adequately address the Project's purpose and need; and it cannot safely and effectively accommodate emergency service vehicles. Beginning in 2008, PennDOT proposed that if Tinicum Township assumed responsibility for the ownership and future maintenance of the bridge, a one-lane bridge could be constructed. As of April 2017, the township was not willing to take ownership of the Bridge and has yet to advise PennDOT to the contrary. This alternative was thus not reasonable or prudent. AR-27, pgs. 26, 43-50; AR-12, pgs. 23-27.

iii. Two-Lane Replacement and Partial Rehabilitation. This alternative would involve significant present construction and future maintenance costs; it would address the deterioration of the Bridge to some extent, but not entirely; and it does not fully address the need safely and effectively to accommodate emergency response vehicles. The alternative is thus neither prudent nor reasonable. AR-27, pgs. 26, 50-58; AR-12, pgs. 27 - 31.

iv. One-Lane (Replacement) Bridge Alternative. This alternative, a one-lane replacement bridge at the same location, does not meet PennDOT and AASHTO criteria; it does not address the problem of functional obsolescence; and it cannot safely and effectively accommodate emergency service vehicles. Beginning in 2008, PennDOT proposed (as it did for the one-lane rehabilitation alternative, *supra*) that if Tinicum Township assumed responsibility for the ownership and future maintenance of the bridge, a one-lane bridge could be constructed. As of April 2017, the township was not willing to take ownership of the Bridge. AR-27, pg. 46.

The alternative is thus neither prudent nor reasonable. AR-27, pgs. 26, 58-61.

v. Two-Lane Bridge Replacement. The parties do not dispute that the removal and replacement of the entire Headquarters Road Bridge would constitute a Section 106 Adverse Effect on the Historic District. *See supra*. However, it would accomplish the following: (1) meet PennDOT and AASHTO criteria; (2) address the problem of structural deficiency; (3) address the problem of operational deficiency, thus resolving the issue of obsolescence; (4) accommodate emergency service vehicles; and, (5) from an engineering perspective, be sound. AR-27, pgs. 26, 61-67; AR-12, pgs. 31-39.

D. Least Overall Harm.

i. The One-Lane Bridge Rehabilitation, Two-Lane Bridge Rehabilitation, One-Lane Bridge Replacement, and Two-Lane Bridge Replacement would all have a Section 106 Adverse Effect on the Historic District. AR-27, pg. 26, 67 -68.

ii. The Two-Lane Bridge Replacement would involve the least overall harm. *Id.*

iii. FHWA, PennDOT, the Pennsylvania State Historic Preservation Office ("SHPO"), and the Advisory Council on Historic Preservation ("ACHP") have developed mitigation efforts during the Section 106 process. AR-27, pg. 26, 68-79.

iv. These efforts have been incorporated into a Memorandum of Agreement between FHWA, PennDOT, SHPO, and ACHP. AR-27, pg. 76.

v. The Memorandum of Agreement creates a Design Advisory Committee to review the project plans and specifications and provide feedback. AR-27, pg. 77.

vi. The members of the Design Advisory Committee will be drawn from the National Park Service, Bucks County Officials, Tinicum Township Supervisors, the Pennsylvania State Historic Preservation Office, the Advisory Council on Historic Preservation, consulting parties, and the local public. *Id.*

vii. PennDOT will incorporate the recommendations of the Design Advisory Committee as practicable. *Id.*

viii. Pursuant to 23 C.F.R. § 774.3(c), the least-overall-harm analysis considers the following factors: (l) the ability to mitigate adverse

impacts on Section 4(f) properties; (2) the relative severity of remaining harm after mitigation; (3) the relative significance of each Section 106 property; (4) the views of the officials with jurisdiction over each Section 106 property; (5) the degree to which each alternative meets the Project purpose and need; (6) after reasonable mitigation, the magnitude of any adverse impact on resources not protected by Section 4(f); and (7) significant cost differences among the alternatives. AR-27, pgs. 78-81.

a. Denied.

b. The Bridge itself is a 4(f) property. See supra at ¶ 73 (PennDOT). To the extent that the rest of the “fact” only represents what the Section 4(f) Evaluation “concluded,” and does not represent the truth of the matters asserted, Plaintiffs do not dispute the rest of the “fact,” including subsections (A)-(D).

20. In August 2018, FHWA executed the Memorandum of Agreement. AR-27, pgs. 552 -559 (Appendix G).

a. Admitted.

21. The FHWA approved the "categorical exclusion" on September 24, 2018. AR-26, pg. 4.

a. Admitted.

22. The Bridge remains closed. AR-59, pg. 114.

a. Admitted.

23. This suit followed. AR-59, pgs. 437, 445.

a. Admitted.

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF PENNSYLVANIA**

DELAWARE RIVERKEEPER
NETWORK, et al.,

Plaintiffs,

v.

FEDERAL HIGHWAY
ADMIN., et al.,

Defendants.

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CIVIL ACTION NO. 18-cv-4508

GENE E.K. PRATTER, J.

**PLAINTIFFS' BRIEF IN OPPOSITION OF DEFENDANTS' MOTIONS
FOR SUMMARY JUDGMENT, AND PLAINTIFFS' BRIEF IN SUPPORT
OF PLAINTIFFS' CROSS-MOTION FOR SUMMARY JUDGMENT**

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I. COUNTER STATEMENT OF ISSUES

The Following issues are presently before this Court:

- 1) Whether Defendants' approval of a categorical exclusion for the destruction and replacement of Headquarters Road Bridge violated the National Environmental Policy Act?

Suggested Answer: Yes

- 2) Whether the Bridge and Tinicum Creek are 4(f) properties subject to all the protections afforded by the Department of Transportation Act?

Suggested Answer: Yes

- 3) Whether Defendants' 4(f) Determination that rehabilitating the Bridge was not a "prudent" alternative violated the Department of Transportation Act?

Suggested Answer: Yes

II. STATEMENT OF CASE

Plaintiffs Delaware Riverkeeper Network, and the Delaware Riverkeeper, Maya van Rossum, (collectively “DRN” or “Plaintiffs”) challenge the Pennsylvania Department of Transportation’s (“PennDOT”) and the Federal Highway Administration’s (“FHWA”) (collectively “Defendants”) issuance of a Categorical Exclusion (“CE”) and Final Individual Section 4(f) Evaluation with regard to the Headquarters Road Bridge Project (“Project”), in Tinicum Township, Bucks County. Defendants have unlawfully determined that the Headquarters Road Bridge (“Bridge”) must be destroyed and replaced with a modern new 2-lane concrete structure.

The Headquarters Road Bridge is listed in the Ridge Valley Rural Historic District’s (“Historic District”) Property Inventory as a contributing structure for its unique design and permanence. The “deck of the bridge is made of concrete and the side railings were made from pipe. A date-stone in one of the terminal post supports reads ‘No. 286 Rebuilt 1919.’ The massive stone bridge approaches and middle support suggest that the earlier bridge may have been a wooden covered bridge.” *See* AR-1, pg. 14. The Bridge was built in 1812 and re-decked in 1919, making it the oldest of the six contributing bridges within the Historic District. The Historic District’s registration form states that the six bridges, including the Headquarters

Road Bridge, are an “important element” of the Historic District. *See* AR-1, pg. 3. In addition to its listing on the National Register of Historic Places, the Historic District is recognized as an outstandingly remarkable cultural and historic resource for the Tinicum Creek portion (Segment L) of the Lower Delaware River, which is preserved under the National Wild and Scenic Rivers Act. AR-2.

Defendants’ CE and Section 4(f) Determinations have allowed them to evade the appropriate environmental, historical, and community impact analysis required by law. The proposed Project as described in the CE will have a significant impact on natural, cultural, recreational, and historic resources of the area, and will also result in the demolition of a historically significant 200 year old bridge. The Delaware Riverkeeper Network has submitted numerous expert reports, letters, and comments at various times throughout the history of the proposed Project to both FHWA and PennDOT highlighting the Agencies unlawful use of a CE for the Project and refuting much of the factual and analytical foundations upon which the CE and 4(f) determinations rest. Indeed, DRN has submitted comments from two environmental consulting firms, signed and sealed construction plans from a certified bridge rehabilitation engineering firm, an architectural and historic preservation historian from Kutztown University, and a traffic consulting firm. The robust record generated by these experts demonstrates that Defendants improperly classified the Bridge demolition Project as a categorical exclusion pursuant to the

National Environmental Policy Act (“NEPA”), and failed to conduct a proper section 4(f) evaluation under the Department of Transportation Act (“DOTA”).

At risk here is the survival of a remarkable and unique historic bridge, one of the last of its kind, which has stood for over 200 years and still contributes immeasurable value to the surrounding community. Also at risk is the health and vitality of Tinicum Creek, a pristine Pennsylvania Department of Environmental Protection categorized “Exceptional Value” waterway within the designated Lower Delaware National Wild and Scenic River system. Defendants actions have threatened both, and federal laws and regulations require further analysis be done to ensure the impacts are properly accounted for and mitigated. DRN requests that this Honorable Court vacate, rescind, or otherwise remand the CE decision and 4(f) Determination made by Defendants.

III. STANDARD OF REVIEW

Summary judgment shall be issued when “there is no genuine issue of material fact and the moving party is entitled to judgment as a matter of law.” *Buckingham Township v. Wykle*, 157 F.Supp. 2d 457, 462 (E.D. Pa. 2001); F.R.C.P § 56(c). Section 706(2) of the APA governs the Court’s review of an agency decision under the National Environmental Policy Act and the Department of Transportation Act, Section 4(f). 5 U.S.C. § 706(2); *Citizens to Preserve Overton*

Park v. Volpe, 401 U.S. 402, 415-17 (1971); *Friends of the Atglen-Susquehanna Trail, Inc. v. Surface Transp. Bd.*, 252 F.3d 246, 262 (3d. Cir. 2001); *Society Hill Towers Owners' Ass'n v. Rendell*, 210 F.3d 168, 178-79 (3d Cir. 2000).

Specifically, the Court must determine whether the agency's decision was arbitrary, capricious, or an abuse of discretion. 5 U.S.C. § 706(2)(A); *Marsh v. Oregon Natural Resources Council*, 490 U.S. 360, 376-77 (1989); *Friends of the Atglen-Susquehanna Trail*, 252 F.3d at 262; *Society Hill Towers*, 210 F.3d at 178-79; *Concerned Citizens Alliance, Inc. v. Slater*, 176 F.3d 686, 690-91 (3d Cir. 1999).

IV. SUMMARY OF ARGUMENT

Plaintiffs Delaware Riverkeeper Network, and the Delaware Riverkeeper ("DRN" or "Plaintiffs") filed a civil Complaint alleging Defendants violated both the National Environmental Policy Act ("NEPA") and the Department of Transportation Act ("DOTA") in their review and approval of project involving the demolition and replacement of Headquarters Road Bridge (the "Project").

Specifically, Defendants violated NEPA by classifying the Project as a categorical exclusion under Section 771.117(d), without the appropriate environmental reviews and with a predetermined outcome in mind. Indeed, from

the beginning of the Project, over a decade ago, record evidence demonstrates that Defendants unlawfully committed resources, signed contracts, and characterized the Project as a “replacement” Project prior to completing its NEPA responsibilities. Any subsequent analysis of rehabilitation was merely window dressing.

Furthermore, Section 771.117(b) requires additional environmental review if certain “unusual circumstances” are present. 23 C.F.R. §771.117(b). To the extent an “unusual circumstance” exist, NEPA demands the generation of “appropriate environmental studies.” *Id.* Here, Defendants never generated or required the requisite studies.

There is no question that the proposed Project triggered a number of these “unusual circumstances.” For example, one “unusual circumstances” is where the Project impacts a 4(f) property. Here, Defendants specifically characterized only the Ridge Valley Rural Historic District as the 4(f) property, and not the Bridge or Tinicum Creek. The record shows that both the Bridge and Creek qualify as 4(f) properties, which therefore mandates an equal application of the attendant legal protections under NEPA and DOTA. As a result of Defendants’ misidentification of the 4(f) properties, Defendants did not conduct the appropriate studies to determine the effect of destroying, or otherwise impacting, the 4(f) properties.

An additional “unusual circumstance” is a “controversy on environmental grounds.” AR-26, pg. 81 (admitting there is a “public controversy on environmental grounds”). DRN submitted numerous expert reports from two separate environmental engineering firms that disputed, conflicted, and otherwise refuted the findings of PennDOT and the FHWA regarding the size, nature, and effect of the environmental impacts resulting from the Project. Defendants branded the conflicting opinions as merely a quibble about “our experts [being] better than yours.” FHWA Br. at 9. However, such a statement mischaracterizes the legal standard, and why a disagreement among experts is important. Here, DRN’s experts not only disputed numerous factual findings of the agencies and their consultants, but also identified critical information gaps, missing studies, and absent modeling which were collectively needed to determine the significance of the environmental impact of the Project. Because Defendants never performed these various studies, the review and approval of the Project violated NEPA.

Additionally, record evidence shows that rehabilitation of the Bridge was a “prudent” avoidance alternative pursuant to the DOTA. Here, the rehabilitation alternative could only be rejected by Defendants if rehabilitation “compromise[d] the project to a degree that it [was] unreasonable to proceed with the project in light of its stated purpose and need,” or “[i]t result[ed] in unacceptable safety or operational problems.” 23 C.F.R. §§ 774.17(i), (ii). However, no such problems

existed with regard to bridge rehabilitation; indeed, PennDOT itself proposed that if “Tinicum Township assumed responsibility for the ownership and future maintenance of the bridge, [the] one-lane bridge could be [rehabilitated].” FHWA Br. at ¶ 19(c)(ii). Additionally, DRN submitted construction plans signed and sealed by a Bridge Rehabilitation Engineer, traffic studies, turning radius modeling, and other expert materials showing that rehabilitation could meet the purpose and needs of the Project. This evidence demonstrates that rehabilitation neither rose to the level of “compromising” the Project because it was “unreasonable,” nor presented “unacceptable safety or operational problems.” Because DRN has shown by a preponderance of the evidence that Defendants’ acted improperly in approving the destruction of the Bridge, Defendants’ violated the DOTA. *Concerned Citizens Alliance, Inc.*, 176 F.3d 686 (citing *Ringsred v. Dole*, 828 F.2d 1300, 1302 (8th Cir. 1987)).

In light of the foregoing, DRN asks that the court rescind, vacate, or remand, Defendants’ categorical exclusion and 4(f) Determination.

V. ARGUMENT

I. Defendant’s Analysis and Approval of the Project Violated the National Environmental Policy Act.

A. The Pennsylvania Department of Transportation Pre-determined And Irretrievably Committed Resources To Replacement Of The Bridge In Violation Of NEPA.

When PennDOT initiated the NEPA process to select a preferred alternative for Headquarters Road Bridge, it did so with a predetermined outcome in mind and made commitments to that outcome: replacement of the Bridge.

FHWA argues that it is “factually and legally irrelevant” whether PennDOT predetermined the outcome of Bridge replacement. FHWA Br. at 3; *see also* PennDOT Br. at 37, fn. 7. Specifically, both Defendants cite *Environmental Defense Fund, Inc. v. Corps of Engineers*, 470 F.2d 289 (8th Cir. 1972), for the proposition that NEPA only requires agencies to evaluate their projects “objectively,” and does not “require agency officials to be subjectively impartial. . . NEPA assumes as inevitable an institutional bias within an agency proposing a project . . . [Th]e test of compliance with [NEPA] is one of good faith objectivity rather than subjective impartiality.” FHWA Br. at 3. PennDOT also argues that “[t]he test for whether an agency unlawfully predetermined the result is not whether the agency subjectively impartial, but whether the process was completed with ‘good faith’ objectivity.” PennDOT Br. at 37, fn. 7. (citing *Coalition Against a Raised Expressway, Inc. v. Dole*, 835 F.2d 803, 807 (11th Cir. 1988)). However, neither argument withstands scrutiny, because both parties address the wrong standard.

The case law on this issue is clear, “agencies must prepare NEPA documents . . . **before** making a commitment to a project.” *Citizens Advisory Committee on Private Prisons, Inc. v. U.S. Dept. of Justice*, 197 F.Supp.2d 226, 242 (W.D. Pa. 2001)(emphasis added). In *Citizens Advisory Committee on Private Persons*, the agency “awarded the contract . . . before it had ever issued” the NEPA documents. *Id.* To comply with NEPA an agency must prepare the NEPA documents, “before any irreversible and irretrievable commitment of resources.” *Conner v. Burford*, 848 F.2d 1441, 1446 (9th Cir. 1988); *see also Metcalf v. Daley*, 214 F.3d 1135, 1143 (9th Cir. 2000); *EDF v. Andrus*, 596 F.2d 848, 852 (9th Cir. 1979). In *Metcalf*, “the ‘point of commitment’ . . . came when [the agency] signed the contract” related to the project. *Metcalf*, 214 F.3d at 1143; *see also Save the Yaak Committee v. Block*, 840 F.2d 714, 718-19 (9th Cir. 1988) (the “contracts were awarded prior to the preparation of the EAs . . . These events demonstrate that the agency did not comply with NEPA’s requirements concerning the timing of their environmental analysis, thereby seriously impeding the degree to which their planning and decisions could reflect environmental values”). Thus, the issue the court must decide is whether the Defendants prepared their NEPA documents too late in the decision-making process, *i.e.*, after making an irreversible and irretrievable commitment of resources.

Documents in the record demonstrate that PennDOT irretrievably committed resources and directed the outcome of replacement prior to completing the NEPA

process, and only at best later paid lip-service to rehabilitation. For example, in the “Categorical Exclusion Scoping Field View” for the Project Defendants expressly concede that as early as April 22, 2005 that “[t]his is a bridge **replacement** project.” AR-3, pg. 9 (emphasis added). Furthermore, PennDOT expressly represented to its consultants – prior to the NEPA process even being scoped – that “PennDOT is **proposing replacement** of the structure.” *Id.* at 17 (emphasis added); *see also id.* at 29 (describing it as a “Bridge Replacement”); *id.* at 31 (“This bridge replacement will have no impact on planned growth in the area”).

Additionally, in the Project Specific Agreement E00342 dated March 23, 2005, PennDOT contracted with Urban Engineers to “replace[]” three bridges in Bucks County, including Headquarters Road, for \$1.3M (the “Agreement”). AR-37, pg. 269-274. The Agreement reads as follows:

THIS AGREEMENT, made and entered into on 3/23/2005, at Harrisburg, Pennsylvania, between the Commonwealth of Pennsylvania, acting through its Department of Transportation, by the Secretary, (“Department”), and Urban Engineers, Inc., a Corporation of CONSULTANTS, registered as such in the Commonwealth of Pennsylvania, their heirs, executors, administrators, successors, or assigns, (“Consultant”).

Id. at 277. The Agreement identifies that the work is for “[t]hree (3) Bridge Replacements in Bucks County,” one of which was Headquarters Road Bridge. *Id.* In the Technical Proposal attendant to the Agreement, the document specifically states that the agreement covers, “preliminary engineering, environmental studies,

final design and consultation during construction **for the replacement of two structures on Headquarters Rd, Tinicum Township in Bucks County.**” AR-37, pg. 277. Throughout these documents the proposed project is repeatedly described, or otherwise referred to, as a “bridge replacement.” *Id.* at 101-363. PennDOT continued to use Urban Engineers as its consultant to provide various analysis justifying the replacement of the Bridge, including preliminary designs, and final designs. Unsurprisingly, Urban Engineers later issued a report in August of 2006 specifically recommending replacement of the Bridge. AR-5, pg. 14. This is not a commitment of resources that can be explained away as a perfunctory accounting requirement, or a careless use of words, PennDOT clearly and unequivocally entered into an agreement to replace the Bridge prior to a completion of the NEPA analysis, which is a direct violation of NEPA.

Even if these documents do not amount to a full admission that PennDOT directly predetermined the outcome for Headquarters Road Bridge, or at least irretrievably committed resources to that effect in violation of NEPA, this agreement also represents an indirect predetermination of the outcome through the facilitation of an unconscionable conflict of interest. Here, there is no question that the cost of designing and constructing a Bridge replacement exceeds the cost of rehabilitation (excluding maintenance costs). Indeed, PennDOT admits as such stating that “the initial costs for both rehabilitation alternatives are expected to be less than the initial

costs for replacement.” PennDOT Br. at 20. Therefore, PennDOT knowingly entered into a contract with Urban Engineers for the most expensive case scenario – Bridge replacement – and then later used that same firm to determine whether that most expensive case scenario was necessary. It should not be surprising that Urban Engineers recommended that the most expensive case scenario was required, as they had every financial incentive to do so and had already signed a contract to do exactly that. PennDOT’s actions here, regardless of any bureaucratic pretexts or explanations, are unlawful.

Additionally, in the Technical Proposal Detail Report from November 2004 for Agreement E00342, the Scope of Work states that the outcome of the report will be that there are no feasible or prudent alternatives other than Bridge replacement:

The Section 4(f) Evaluation will evaluate alternatives developed by the project team and will incorporate information and coordination with local authorities. The alternative analysis section will include detailed design plans depicting each alternative impact on each of the Section 4(f) resources. If there are no feasible and prudent alternatives to avoid the use of Section 4(f) resources, mitigation measures will be developed. **This report will document that there are no feasible or prudent alternatives to the use of Section 4(f) resources for this project.**

AR-37, pg. 304(emphasis added). This document shows that Defendants predetermined the outcome of the 4(f) analysis before it ever took place.

Collectively, these documents demonstrate that PennDOT intended to replace the Bridge long before the NEPA analysis and 4(f) Determination were completed, and never had any intention of providing any meaningful consideration to other alternatives such as Bridge rehabilitation. In PennDOT's statement of facts PennDOT shows their true intentions when they state that the purpose of its Bridge Width Evaluation was to "document that a one-lane bridge does not adequately address the purpose and need;" as opposed to its designed purpose of reviewing "whether the purpose and need of Headquarters Road Bridge over Tinicum Creek project can be met by providing a one-lane bridge." AR-10, pg. 1. PennDOT's "fact" therefore admits to finding a means to an end, rather than fairly and objectively reviewing the rehabilitation alternative.

B. The Project Was Improperly Designated As A Categorical Exclusion Pursuant to Section 771.117(b).

Defendants base their decision to replace the Bridge upon their view that the Bridge project meets the definition of a Level 2 Categorical Exclusion. 23 C.F.R. § 771.117(d)(13); *see, e.g.*, PennDOT Brief at 3. However, projects normally categorically excluded from further NEPA review are subject to additional evaluation in the presence of "unusual circumstances." 23 C.F.R. § 117.117(b). These unusual circumstances include:

- (1) Significant environmental impacts;

- (2) Substantial controversy on environmental grounds;
- (3) Significant impact on properties protected by Section 4(f) requirements or Section 106 of the National Historic Preservation Act; or
- (4) Inconsistencies with any Federal, State, or local law, requirement or administrative determination relating to the environmental aspects of the action.

Id. Here, the Project triggers several “unusual circumstances” any one of which alone precludes PennDOT from issuing a CE because the “appropriate environmental studies” were not generated. *See* 23 C.F.R. § 117.117(b)(1-4).

1. The Project Results in a Significant Impact on 4(f) Properties Without the Appropriate Studies.

There is no question destroying the Bridge, a 4(f) property, results in a significant impact to that 4(f) property. In response, Defendants offer a smorgasbord of arguments contending that 1) the Bridge is not itself protected as a 4(f) property; 2) the destruction of the Bridge does not result in significant impacts to the Ridge Valley Historic District; and 3) Tinicum Creek is not a 4(f) resource. *See* PennDOT Br. at 29-37; FHWA Br. at 8 – 11 and 13-15. None of these arguments withstand scrutiny.

i. The Bridge Is A 4(f) Property That Enjoys The Same Protections As Any Other 4(f) Property.

There is no question that the historic Bridge itself is a 4(f) property, and enjoys the multitude of statutory and regulatory protections under NEPA and the DOTA.

See Complaint at ¶¶ 61-86. Neither PennDOT nor FHWA even bother to cite the governing regulation regarding how a structure or site qualifies as a 4(f) property. *See* 23 C.F.R. §774.11(e). Section 774.11(e) states that “[t]he Section 4(f) requirements apply to historic sites on or eligible for the National Register unless the Administration determines that an exception under § 774.13 applies.” 23 C.F.R. § 774.11(e). Defendants do not contest that an exception under Section 774.13 applies, and even if so, Defendants have forfeited the opportunity to do so by failing to raise the argument in their motions. Second, there is no question that the Bridge is “eligible for the National Register” as contemplated by the regulation. AR-14, pg. 103 (“the bridge **is considered listed in the National Register.** . . .”) (emphasis added); *see also* FHWA Br. at 14 (“Unquestionably, the Bridge enjoys Section 4(f) protection . . .”); PennDOT Br. at 9, ¶ 38 (“the bridge is eligible . . . to the *National Register*”).

Indeed, both FHWA and PennDOT have explicitly admitted at different points during the review process that the Bridge itself is a 4(f) property. For example, FHWA acknowledged that the Bridge is a 4(f) property in response to a comment letter submitted by Plaintiffs. Specifically, on August 13, 2015, Plaintiffs submitted a letter to the FHWA explaining that for the purposes of the FHWA and PennDOT’s review of the Bridge Project, the “Headquarters Road Bridge itself is a 4(f) property.” AR-52, pg. 199. The FHWA responded on August 26, 2015, agreeing

with Plaintiff's assessment and stating that "[t]he Headquarters Road Bridge over Tinicum Creek is a contributing resource to the Ridge Valley Rural Historic District. Accordingly, it is subject to the requirements of Section 4(f)." AR-52, pg. 343. The FHWA's letter further clarified that "[t]he individual[] eligibility of the bridge would not influence how the FHWA or the Pennsylvania Department of Transportation (PennDOT) is complying with the related requirements." *Id.* In recognition of this reality, the Final Categorical Exclusion Evaluation unequivocally stated that "the Ridge Valley Rural Historic District **and its contributing resources []the Headquarters Road Bridge . . . are considered Section 4(f) resources.**" AR-26, pg. 75 (emphasis added). These admissions are clear, dispositive, and any argument now offered by Defendants to the contrary is arbitrary and capricious. The Bridge is a 4(f) property.

Defendants attempt an end-run around the Section 4(f) protections for the Bridge through tortured wordsmithing and a hyper-technical and unprecedented application of the regulations. The Defendants' unsupported conclusions ask this Court to reject the plain meaning of the governing regulations, and instead demands that the Court conjure an entirely new standard. The Court should reject adopting such a radical position.

Specifically, Defendants contend that the "Bridge enjoys Section 4(f) protection, **but only in the context of its relationship to the Historic District.**"

FHWA Br. at 14 (emphasis original); *see also* PennDOT Br. at 21 (“The only . . . Section 4(f) resource impacted by the Project is the Valley Ridge Rural Historic District”). This interpretation conflicts with Defendants’ earlier commitment that “[t]he individual[] eligibility of the bridge would not influence how the FHWA . . . compl[ies] with the related requirements.” AR-52, pg. 343. Furthermore, Defendants point to no case law where such a limitation has been applied to a Section 4(f) property, any situation in which Defendants have applied this new legal theory, or any other the authority imposing such a limitation. An examination of the key paragraph of FHWA’s brief for example reveals not a single citation to any authority. *See* FHWA Br. at 14.

Even assuming the Bridge is not individually eligible for the *National Register*, which Plaintiffs nevertheless contest,¹ the issue of **how** the Bridge qualifies as a 4(f) property is entirely immaterial to the way in which the Section 4(f) legal

¹ The assessment conducted of the Bridge by A.G. Lichtenstein and Associates, Inc. – which was relied upon for the determination regarding the individual eligibility of the Bridge – is entirely devoid of any accurate information. For example, the review states that the “yr built” was “1919.” AR-14, pg. 106. However, that assessment is nearly one-hundred years off, as the Bridge was built in the “early 19th century.” AR-4, pg. 2; *see also* AR-1, pg. 5. Furthermore, the assessment states that the Bridge is one of “most common, mid-20th century bridge types.” AR-14, pg. 106. However, as noted above, this Bridge is not of mid-20th vintage, nor is it “common.” *Id.* Indeed, it is the oldest surviving bridge of its type in the entire Commonwealth. AR-56, pg. 892; AR-52, pg. 212 – 227; AR-57, pg. 382 – 384; *see also* AR-1, pg. 5 (describing the Bridge as the “older” of the “early bridge” sites). The assessment also misstates that the Bridge “is not historically or technologically noteworthy,” *id.*, which expressly conflicts with the later findings of the Keeper. *See* AR-4 (finding that the Bridge has “engineering significance” and is “historically significant”). As such, nearly the entirety of the substantive review relied upon to make the determination that the Bridge was not individually eligible rests upon materially and verifiably false information.

protections are **applied**. The statute, regulations, case law, and FHWA’s own policy do not distinguish the Section 4(f) protections provided to a contributing element to 4(f) property, versus an individually eligible 4(f) property. They are treated the same.

Furthermore, the governing statute **does not** state that the property must be “individually eligible” for the *National Register* to be considered a 4(f) property, nor does the regulation state that if the property is not individually eligible that the 4(f) protections are in any way abridged or otherwise limited. *See* 23 C.F.R. §774.11(e). As such, the plain meaning of the regulations support DRN’s position that the Bridge itself enjoys the same protections as any other Section 4(f) property. As identified by Defendants, the Bridge’s status as a 4(f) property relates to its classification as a “‘historic site’ which is keyed to the ‘inclus[ion] in, or eligible for inclusion in, the National Register.” FHWA Br. at 18-19 (quoting 23 C.F.R. § 774.17). Here, the Bureau of Historic Preservation expressly concluded that “the **bridge is considered listed in the National Register. . .**” AR-14, pg. 103. As such, the Bridge is a 4(f) property, and enjoys all the protections under the statute and regulations, full stop.

The FHWA’s own *Section 4(f) Policy Paper* also supports this position, where the FHWA makes clear that:

FHWA’s longstanding policy is that Section 4(f) applies to those properties that are considered contributing to the eligibility of the historic district, as well as any individually eligible properties within the district.

Office of Planning, Environment, and Realty Project Development, Federal Highway Administration, Section 4(f) Policy Paper (July 20, 2012). The policy explicitly parallels the protections of “contributing” 4(f) properties with the second clause of that sentence identifying the 4(f) protections to “individually eligible” properties. *Id.* There is no distinction between the two. If Section 4(f) protections only applied in the context of the contributing property’s relationship with the 4(f) property – as argued by PennDOT and FHWA – the regulations and the policy paper would have said so.

Conspicuously, neither Defendant cites any authority concluding otherwise, and instead merely offer the conclusory, unsupported, and entirely speculative argument that the “Section 4(f) analysis in this case must focus on the Historic District as a whole, not on the Bridge in isolation.” FHWA Br. at 14. Section 4(f) protections are not tiered such that “contributing” 4(f) properties are second-class 4(f) properties under the law and somehow subject to some undefined, and lesser, standard.

Furthermore, there are good public policy reasons why there is no such distinction. For example, to the extent the each of the contributing elements of the Historic District can be destroyed and replaced by modern projects with only token references to the historical significance of the site, there is nothing to stop the

eventual destruction of the Historic District. It is the classic example of a death by a thousand cuts.

The reason why this distinction is important is because the applicable NEPA regulations require that where there is a “significant impact on properties protected by Section 4(f) requirements that additional “appropriate” studies are required. 23 C.F.R. § 117.117(b). Here, the appropriate studies could not have been conducted because the focus was on mitigation of the harms to Historic District as a whole, not mitigating the destruction of the Bridge specifically. PennDOT Br. at 12-13, 35-36 (citing the mitigation efforts to the “Historic District” in the “Memorandum of Agreement”). This is reflected by the fact that one of the proposed mitigation measures is the creation of a display that will focus on the historic significance of the “Historic District,” with only some “information on the Bridge.” PennDOT Br. at 13-14.

Defendants have therefore artificially inflated the size of the 4(f) property being harmed – identifying the Historic District as opposed to the Bridge – such that the proposed mitigation appears sufficient. Had the Bridge been considered a 4(f) property, more thorough mitigation would have been required, as was required in nearly all the cases cited by Defendants.

Defendants heavily rely on *Friends of Pioneer Street Bridge v. FHWA*, 150 F. Supp. 2d 637 (D. Vt. 2001), to support their position, arguing that it is “analogous”

to the Bridge Project. PennDOT Br. at 10. Specifically, PennDOT contends the case is similar because it concerns a historically significant bridge where the court found that a “‘no significant impact determination’ was supported by the mitigation measures undertaken for the project.” *Id.* at 10. What PennDOT does not tell the Court is that the “mitigation measures” taken in *Friends of Pioneer Street Bridge*, involved **saving the bridge in its entirety, rehabilitating it, and storing it for later use at a separate location**. *See Friends of Pioneer Street Bridge*, 150 F. Supp. 2d at 647; *see also* PennDOT Br. at 15 (PennDOT vaguely conceding that the bridge would be “preserve[d]”). Critically, PennDOT does not mention that in *Friends of Pioneer Street Bridge* the Bridge itself was considered a 4(f) property. 150 F. Supp. 654 (“There is no dispute in this case that § 4(f) is applicable to the Pioneer State Bridge”). This stands in stark contrast to the issue Petitioners have presented here, as the Bridge itself is not being considered a 4(f) property and will be utterly destroyed, there is no comparison.

Defendants also cite *Concerned Citizens of Chappaqua v. U.S. DOT and NYDOT*, 579 F. Supp. 2d 427 (S.D. N.Y. 2008), to support the position that it satisfied its NEPA requirements. *See* PennDOT Br. at 10. However, reliance on this case is equally inappropriate. First, the procedural posture of the case was on a motion for preliminary injunction, which involves a different standard of review. Additionally, unlike the instant matter, the 4(f) mitigation measures in *Chappaqua*

were specifically designed to mitigate the loss of the Bridge. *Id.* at 435 (The Memorandum of Agreement...specifies precise mitigation measures—specifically, a full documentary and photographic preservation of the property”). Indeed, in that case the Memorandum of Agreement required that that: the bridge would be archivally documented in accordance with Historic American Buildings Survey and Historic American Engineering Record requirements; arched steel beams that mimic the existing national Register eligible bridge’s built-up steel plate girders would be used; architecturally distinct pedestrian stairways would be designed that mimic the detailing of the steel superstructure and stone faced pier of the existing National Register eligible bridge pedestrian stairways; stone faced abutments and pier with architectural reveals/pilasters, similar in overall appearance to the existing National Register eligible bridge abutments and pier would be used; and elements of the bridge would be salvaged from the existing National Register eligible bridge. Pl. Reply Mem. in Supp. of Their Motion for A Prelim. Inj., *Concerned Citizens of Chappaqua v. U.S. DOT and NYDOT*, 579 F. Supp. 2d 427, 434 (S.D. N.Y. 2008). Here, there is no similar commitment to preserving or documenting the historical significance of the Bridge, even though the proposed Project will result in the complete destruction of the historically unique Bridge. Considering that the mitigation goals failed to consider the impacts to the historical significance of the Bridge itself, the *Chappaqua* case is inapposite.

PennDOT also cites to the unpublished decision of *River Fields, Inc. v. Peters*, 2009 U.S. Dist. LEXIS 63620 (W.D. Ky., July 23, 2009), for the proposition that the court there “upheld FHWA’s approval the widening of a bridge individually eligible for the *National Register* and also a contributing element to a historic district from one lane to two lanes as a CE.” *See* PennDOT Br. at 11. However, ironically, in that case FHWA committed to the “rehabilitation” of the bridge, and **not** a complete demolition. *Id.* at *20 (“The MOA provides, in pertinent part, that the reconstructed Bridge will mimic the original in its appearance and materials, and vegetation that is removed will be replaced in accordance with a landscape plan”). PennDOT cites to yet another unpublished decision in *Van Raden v. City of Portland*, 2010 U.S. Dist. LEXIS 7745 (D. Or. 2001). However, *Van Raden*, similar to the prior cases, is also inapposite as the focus of the historic preservation analysis was on preserving and documenting the historic structure at issue, whereas in the case at hand, the mitigation measures are improperly focused on the Historic District as whole and not the Bridge. *Id.*

Unlike the above referenced cases, Defendants never made the determination anywhere in the record that the destruction of the Bridge itself, as a 4(f) property, is sufficiently mitigated by the measures codified in the Memorandum of Agreement. All of the cases cited by Defendants involved far more extensive mitigation than proposed here. Furthermore, the mitigation measures here only target the Historic

District, which is the wrong objective and improperly skews the resulting analyses. Plaintiffs do not argue that the use of categorical exclusions for any project involving destruction of any property with any historic significance is *per se* prohibited; rather, Plaintiffs contend that the Defendants here failed to identify the appropriate 4(f) property for its review of mitigation measures, and that this misidentification fatally infected the NEPA analysis.

ii. **Even If Not Considered a 4(f) Property Itself, The Destruction Of the Bridge Will Significantly Harm The Historic District.**

Defendants attempt to downplay the significance of the Bridge, arguing that “the Bridge is only one minor structure that contributes to the vast Historic District,” and therefore that “[i]ts removal and replacement thus do not constitute a significant impact on a Section 4(f) resource.” FHWA Br. at 14; *see also* PennDOT Br. at 19 (“the record supports the finding that the Project does not result in significant impacts to historic resources”). First, it is sad to see the federal and state governments taking such a position with regard to protecting the heritage and history of the oldest surviving pier-to-pier Bridge left in the Commonwealth. Second, their characterization is flatly wrong.

Headquarters Road Bridge is known to be “the oldest surviving pier-to-pier bridge left in Pennsylvania,” and is characterized by the unique shapes and massing

of the “red shale lozenge shaped bridge piers.” AR-52, pgs. 249-251; AR-56, pg. 892. Removing the single lane historic Bridge and building a modern two lane bridge “would cause significant damage to the historic integrity of this portion of the Ridge Valley Historic District.” AR-45, pgs. 498-499. As noted by Architectural Historian and professor at Kutztown University, Robert Reynolds:

One of the key themes of the Ridge Valley Historic District was the interplay of man-made roadways and natural waterways. The district is mostly a series of narrow, twisting, rising and falling roads following creeks. There were six bridges and two fords in the district. The Headquarters Road Bridge is the oldest in the district as all nearly all the other bridges were built in the auto era to replace fords. In terms of significance, the **Headquarters Road Bridge is the most significant in the district due to its age, design, and rarity.** The ninety degree turns onto Sheep Hole Road and Headquarters Road on the one side of the bridge would likely lead to a change in bridge alignment that could impact the archeological remains of Fretz’s Mill. Changes in bridge alignment would **also ruin the relationship of the bridge to the mill site and the road network that has remained intact for over two centuries.** The intrusion of a modern two lane replacement **bridge would significantly diminish the integrity and the feeling of the Fretz Mill portion of the Ridge Valley Historic District . . .**

The Headquarters Road Bridge brought farmers to Fretz’s mill from four directions and the house and bridge are sited in view of each other. As a miller, Christian Fretz was a significant man in the local farming community and he accrued some wealth as seen in the Georgian architecture of his fine home. Fretz’s standing in the community and his status are apparent in the way that **his stone house, the bridge, and the mill site serve as a central axis to the roads that converge at this rural agricultural industrial site.** Christian Fretz’s stone farmhouse stands at the junction of Headquarters and Red Hill Road which combine briefly in a straight approach to the bridge and

then split after the bridge with ninety degree turns onto Sheep Hole and Headquarters Road.

The bridge plays a **critical role in defining the central axis of this part of the historic district and the bridge alignment, use of red shale for abutments and piers, and one lane scale tie the bridge into the landscape and are in sync with the winding, narrow, and scenic roadways that meet at the bridge.** Perhaps the most interesting travel leg in this area is the approach made on Sheep Hole Road, a narrow dirt road barely two lanes wide that follows the Tinicum Creek to the bridge. Traveling down this road along the creek under a dense tree canopy and at the end glimpsing the red shale lozenge shaped bridge piers that date back to 1812 is truly a journey that engenders a sense of traveling back in time into the nineteenth century. Such remnant surviving road landscapes in Pennsylvania are extremely rare, and to imagine the change that would come from finding a realigned modern concrete span at the end of the dirt Sheep Hole Road seems an avoidable tragedy in the management of the Commonwealth's historic resources and National Register listed rural landscapes.

AR-52, pgs. 249-251 (emphasis added).

The bridges of Tinicum Township may be the most significant collection of bridges in a single municipality in the state of Pennsylvania. *See* AR-52. When the historic resources of Tinicum Township were documented by the Heritage Conservancy from 1989-1990, nearly every bridge was historic. *See* AR-52, pgs. 213-228. Headquarters Road Bridge is part of a complete collection of unique waterway crossings representing an entire history of crossings in the region from the birth of the nation to present day, a collection which exists nowhere else in the Commonwealth. *Id.* The historic district registration form identifies six bridges as contributing resources and states that as a collection, the bridges of the Ridge Valley

strongly reflect two themes: early settlement and transportation changes. *Id.* Because the Bridge is the oldest remaining example of a single lane pier-to-pier bridge in the Commonwealth, its destruction – and the resulting extinction of its type – would forever leave a gaping hole in the formerly complete collection of historic bridge types contained in Tinicum Township. Therefore, replacing one of only six Bridges in the historic district – the oldest one – with “[a] new span [would] have a significant negative effect on the Ridge Valley Historic District,” and would forever alter one of the primary factors contributing the historic district’s classification. *Id.* pg. 226.

PennDOT also concluded that the replacement of the Bridge “will have an *Adverse Effect* on the Ridge Valley Rural Historic District.” AR-12, pg. 61. Specifically, Determination of Effects Report the proposed undertaking “will result in physical destruction to part of the historic district” as it will “require the removal and replacement of one contributing resource to the Ridge Valley Rural Historic District: the Headquarters Road Bridge,” thus “alter[ing] the historic district.” AR-12, pg. 60. Additionally, the National Park Service also determined that the demolition and replacement of “contributing bridge[s] from the historic district will have an Adverse Effect on the Ridge Valley Rural Historic District.” AR-60, pgs. 1-2. The adverse effect determination by both agencies further suggests that the impact

here rises to the level of “significant.”² In point of fact, even assuming the proper implementation of the proposed mitigation measures, the replacement of the Headquarters Road Bridge may be a “death sentence for the Ridge Valley Historic District.” AR-60, pg. 15.

Mitigation efforts, in certain circumstances, may reduce the impact to 4(f) property below significant level for the purposes of NEPA. For example, in *Friends of Pioneer Street Bridge*, the court found that the impact on the bridge was not “significant” because the entire bridge itself would be removed and stored in its entirety, and eventually placed in an adaptive re-use program, which would allow it to be relocated along a bike path. *Friends of Pioneer Street Bridge*, 150 F. Supp. 2d at 653. Here, Defendants provide no such preservation efforts. Additionally, the mitigation measures that are identified are focused on mitigating the effect to the Historic District, and not specifically focused on the loss of the Bridge.

² PennDOT makes the conclusory and unsupported statement that the removal and replacement of the Bridge “will not cause the historic district to be delisted from the National Register.” AR-12, pg. 61. However, it is the Keeper of the National Historic Register of Historic Place who makes this decision, not PennDOT. As such, PennDOT can only speculate as to what the impact of the Bridge’s removal will have on potentially having the Historic District delisted. It is important to note that PennDOT is targeting a growing number of the historic bridges in Tinicum Township for destruction and replacement, this factor apparently is not considered by PennDOT, but would be considered by the Keeper. As more and more bridges are destroyed, the many designations, historic and environmental (such as Wild & Scenic), become increasingly at risk from the individual and cumulative harm.

Even assuming the mitigation efforts properly targeted the Historic District rather than the Bridge itself, they are nevertheless inadequate. Defendants' primary measure proposed to mitigate the loss of the Bridge is to use salvaged masonry components from the historic Bridge to provide a veneer on the outer surface of the newly constructed bridge and the relocation of a plaque.³

However, stone veneering simply does not adequately mitigate for the loss of one of the oldest extant bridges that has been found to be "historically significant in the context of the development of the township, regional transportation, and the operation of local mills, and is of engineering significance both for its early 19th century construction and its sensitive modernization in 1919." AR-4, pg. 2. Specifically, neither of these perfunctory mitigation efforts addresses the "historic" or "engineering" significance for which the bridge was recognized by the Department of the Interior.

Merely using salvaged masonry components from the historic Bridge does nothing to mitigate the adverse impact to the engineering significance of the bridge, which is the complete destruction of the one-lane pier-to-pier design of the span.

³ Defendants also propose to "construct" a "physical display." PennDOT Br. at 13-14. However, it is unclear what the content of the display will be, as no content has been proposed. *Id.* It is unclear how much of the display will be dedicated to the Bridge as opposed to the Historic District, as the display will focus on the "historic significance of the Historic District" with only some "information on the Bridge"). *Id.* at 14. Or even whether this "physical display" will even be at the Bridge site at all, as Defendants have indicated it may only be "content for web publication." *Id.* Collectively, these unanswered questions render this mitigation measure wholly inadequate.

Indeed, “the stone will not be structural, so the authenticity of the stone work as a structural material will be **reduced to a façade decoration attempting to hide the inappropriate new materials** that make up the [new] bridge.” AR-60, pg. 15 (emphasis added). The mitigation plan “utilizes the salvaged stone non-structurally in a manner that mimics older bridges ineffectively.” AR-24, 251. The “use of stones from the 1812 bridge” is nothing more than a “token nod” to the historic bridge. AR-24, 251. The 1812 superstructure that has engineering and historic significance disappears from public understanding in this mitigation proposal.

The acceptance of such inadequate mitigation also threatens the remaining historical fords, iron truss, and concrete spans remaining in the Historic District to become equally demolished and modernized, thus ruining the Historic District creek crossing by creek crossing. Furthermore, even if these proposed mitigation measures where appropriate, which they are not, PennDOT has a well-documented history that it is unwilling or unable to honor its promises with regard to mitigation measures for bridges. Many local residents and consulting parties have personally witnessed PennDOT’s failure to consider Bucks County’s rural and historic setting when rebuilding bridges. In fact, experience with PennDOT has been that it fails to implement the construction and design practices committed to in advance of construction, such as reuse of stone or fundamental designs. For example, the

construction of the bridge at Cafferty Road bore no resemblance to the much less intrusive design PennDOT committed to before demolition. AR-54, pg. 719.

iii. Tinicum Creek is a 4(f) resource.

PennDOT and FHWA assert that Tinicum Creek is unworthy of 4(f) protection. *See* FHWA Br. at 14-15; PennDOT Br. at 20-21. However, the National Park Service in an “official reply” to PennDOT and FHWA on this issue found that while waterways are not generally found to be historic resources, “[t]he fact that Tinicum Creek is surrounded by the Ridge Valley Rural National Historic District (NHD) and that the Headquarters Road has been determined by the Keeper of the National Register (2006) to be a contributing resource of the Ridge Valley Rural NHD is sufficient to designate this project and Tinicum Creek Wild and Scenic River under FHA 4F.” AR-51, pg. 1469 (emphasis added); *see also* AR-1, pgs. 3, 5 (wherein the Creek is mentioned frequently in the Nomination Form as a unique part of the landscape and the driving force for how the road network developed, specifically finding that the creek “unite[s]” the group of farms that make up the Ridge Valley Rural Historic District”). While the criteria for evaluation “generally” excludes from the definition natural waterways or bodies of water, they are not absolutely excluded. Here, PennDOT and FHWA have ignored the well-reasoned analysis of the National Park Service and the Plaintiffs that because of the unique

relationship of Tinicum Creek with the Historic District it is appropriate to apply 4(f) protections to the Creek.

2. The Project Results In A Significant Impact To A Property Protected Under The National Historic Preservation Act.

The Project would also have a significant impact on properties protected by section 106 of the National Historic Preservation Act. The National Historic Preservation Act (NHPA) defines “historic properties” (or historic resources) as “any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion on the *National Register*, including artifacts, records, and material remains related to such a property or resource.” 16 U.S.C. § 470w(5). To be considered for the *National Register*, a property or site must meet the regulatory requirements promulgated pursuant to the NHPA. *See* 16 U.S.C.A. § 470a. The criteria for evaluation under NHPA are set forth in 36 C.F.R. § 60.4. Headquarters Road Bridge meets at least the criteria identified in subsection (a) and (c) of § 60.4. Subsection (a) includes properties that “are associated with events that have made a significant contribution to the broad patterns of our history,” and subsection (c) includes properties “that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction.” As noted above, the historic Bridge

meets these qualifications. *See supra* at 12-19. As such, the bridge is a historic property under the NHPA subject to the requirements of 23 C.F.R. § 771.117(e)(3). *See also Benton Franklin Riverfront Trailway and Bridge Committee v. Lewis*, 701 F.2d 784 (9th Cir. 1983) (finding that a historic bridge met criteria (a) and (c) of 36 C.F.R. § 60.4).

Moreover, Headquarters Road Bridge was listed in the National Register of Historic Places on July 24, 1992, as a contributing property in the Ridge Valley Rural Historic District. According to the National Register, the Bridge:

consists of early 19th century stone abutments and piers carrying an early 20th century replacement concrete deck supported on concrete-encased steel I beams. Both its original construction and alteration occurred within the historic district's defined Period of Significance (1790-1940). The bridge is historically significant in the context of the development of the township, regional transportation, and the operation of local mills, and is of engineering significance both for its early 19th century construction and its sensitive modernization in 1919. Although the concrete deck shows signs of considerable deterioration and the deck has been altered with the removal of the 1919 railings, the bridge retains sufficient historic integrity to continue to contribute to the Ridge Valley Rural Historic District.

AR-4, pgs. 1-2.

The Bridge has been found to be “historically significant in the context of the development of the township, regional transportation, and the operation of local mills, and is of engineering significance both for its early 19th century construction and its sensitive modernization in 1919.” *Id.* This bridge was built in 1812 then

modernized in 1919, during the early automobile era, with a new concrete deck with railings, designed by noted engineer and architect Oscar Martin, replacing the earlier wooden deck that once spanned the piers. The engineering significance of the design of the Bridge is highlighted by the “surviving 1812 abutments and piers” which “mirrors the designs used on covered bridges particularly the numerous Delaware River crossings between Pennsylvania and New Jersey.” AR-52, pg. 249. As such, not only does the Project result in significant impacts to a 4(f) property, it also involves the destruction of a property protected under the NHPA.

3. The Bridge Results In A Substantial Controversy On Environmental Grounds That Requires Further Review.

The Delaware Riverkeeper Network and other parties have submitted numerous expert reports, comments, and letters all calling into question the environmental impacts of the proposed Project on Tinicum Creek. The issues raised by Plaintiffs are significant and remain unaddressed in the final CE and supporting documents, thus constituting a “substantial controversy on environmental grounds” without the appropriate environmental studies. *See* 23 C.F.R. § 771.117(b)(2). PennDOT claims that “DRN has made general comments that the selected alternative will cause significant impacts to the stream, but has not submitted any hydraulic reports or other studies to substantiate these general claims.” PennDOT Br. At 23. This statement is grossly inaccurate.

Plaintiffs submitted roughly **twenty** expert reports and comments based on factual and scientific data that dispute, conflict, or otherwise refute the findings of PennDOT and the FHWA regarding the size, nature, and effect of the environmental impacts resulting from the Bridge Project.⁴ Additionally, an overwhelming proportion of the consulting parties have expressed their rejection of the proposed Project to PennDOT on numerous occasions based on environmental concerns related to bridge replacement. *See* AR-26, pg. 81 (PennDOT admitting that there is a “public controversy on environmental grounds”).

Additionally, PennDOT’s expert, Urban Engineers, submitted an Alternatives Analysis Hydraulic Summary (2012) which conflicts, on environmental grounds,

⁴ *See, e.g.*, McMullan & Associates, Preliminary Condition Assessment and Proposed Rehabilitation, March 6, 2012 at AR-50, pg. 1120-1142; Meliora Design, Headquarters Road over Tinicum Creek, Alternative Analysis Study Review, May 2012 at AR-50, pg. 1118-1119; McMullan Associates, Headquarters Road Bridge Letter to Maya van Rossum, June 14, 2013 at AR-50, pg. 1112-1115; Cultural Heritage Partners, Consulting Party Meeting for Headquarters Road Bridge, March 17, 2014 at AR-48, pg. 265-266; McMullan & Associates, Headquarters Road Bridge – Coring Test, March 18, 2014 at AR-48, pg. 269-270; McMullan & Associates, PowerPoint Presentation: Headquarters Road Bridge, April 2, 2014 at AR-49, pg. 506-542; Mark L. Stout Consulting, LLC., Tinicum Township and the Headquarters Road Bridge: Planning the Future, April 14, 2014 at AR-49, pg. 656 – 689; Robert W. Reynolds, The Bridges of Tinicum Township, August 13, 2015 at AR-52, pg. 212-227; McMullan Associates, Review of Headquarters Road Bridge Project – Determination of Effects Report, December 7, 2015 at AR-53, ps. 548-551; Mark L. Stout Consulting, Comments on the PennDOT Determination of Effects Report on Headquarters Road Bridge, December 8, 2015 at AR-53, pg. 824-836; Meliora Design, Headquarters Road Over Tinicum Creek – Determination of Effects Report, December 14, 2015 at AR-53, pg. 688-694; Mark L. Stout Consulting, Supplement to 14 December 2015 “Comments on the PennDOT Determination of Effects Report of the Headquarters Road Bridge”, January 18, 2016 at AR-54, pg. 105-108; Roberts Engineering for Mark L. Stout Consulting, Preliminary Design for Intersection Improvements at Headquarters Road Bridge and Sheephole Road, June 21, 2016 at AR-57, pg. 108-119; McMullan & Associates, Rehabilitation of the Headquarters Bridge Masonry Substructure, June 27, 2016 at AR-55, pg. 632-647; Princeton Hydro, report on potential stream impacts from Sheep Hole Road Bridge Replacement Tinicum Township, Bucks County, Pennsylvania, July 7, 2016 at AR-56, pg. 784-789; Princeton Hydro, Comments on the Draft Categorical Exclusion Evaluation, January 9, 2017, AR-60, pgs. 19- 24; Meliora Design, Draft Categorical Exclusion Evaluation, January 12, 2017, AR-60, pgs. 25-26; Princeton Hydro, Response to PennDOT Comments on Sheephole Bridge, January 12, 2017 at AR-57, pg. 104-108; McMullan & Associates and Roberts Engineering Group Comments on Draft CE Response, June 12, 2017 at AR-57, pg. 382-384; Rob Reynold, Draft Categorical Exclusion Comment Response, July 13, 2017 at AR-57, pg. 347-356.

with the PennDOT's currently proposed preferred alternative for the Project, and the factual findings relied upon in the CE. Specifically, Urban Engineers' study found that the hydraulic improvements of removing piers – as proposed now – was “not as significant as anticipated,” and that reduced low chord elevations of the single-span options also did not provide as much hydraulic benefit as expected. AR-31, pg. 29. Both of these findings led Urban Engineers to recommend plans that **leave the abutments and piers in their existing locations for a three-span bridge**. AR-31, pg. 34-42. PennDOT's proposed plan ignores the recommendations of its own consultants with regard to the hydraulic studies previously performed. This alone constitutes a substantial controversy that requires additional environmental review.

Urban Engineers also found that removing the piers **increases** the stream velocities at the bridge more than any other alternative evaluated for the 25-year water level. AR-31, pg. 29. This increase in velocity will “lead directly to additional scour of the stream bed and cause more erosion in the vicinity of the Headquarters Road bridge.” AR-60, pg. 13. Additionally, the proposed Bridge Project “will change the flow of Tinicum creek at and downstream of the bridge site, obviously resulting in a shift of the stream westward, causing bank erosion and flow alterations that will cause significant changes to the creek, its flows, habitats and quality at and downstream of the bridge site that have not been considered by PennDOT.” *Id.* These impacts have not been accounted for anywhere in the administrative record.

Of course, it is not only PennDOT's own consultants who have identified environmental issues with the proposed Bridge replacement. DRN has submitted numerous expert reports by civil and environmental engineering firms expressing serious concerns about various environmental impacts resulting from the proposed Project. These reports not only identify environmental problems with the proposed plans, but also identify critical information gaps where studies were either incomplete or never generated. For example, Meliora Design identified that the "25-yr. flood elevation appears to increase from 199.52 to 200.25" for the preferred alternative, which therefore "increases the hydraulic impacts on the stream from a flooding perspective." AR-53, pgs. 688-694. This report also has concluded that "since stream realignment is likely with the proposed changes. This would accelerate streambank erosion, reduce tree cover due to the loss of trees from incised banks, and undercut the area of relocated bridge abutments." AR-53, pg. 692. The removal of mature trees in the riparian corridor for the larger bridge replacement is also a significant environmental concern. AR-60, pgs. 25-26. Another expert report confirms this glaring problem, where it identifies that:

Moving the Abutment 15 feet to the west may have immediate, temporary reductions to scour of the abutment itself, however, it will result in an overall shift in the stream thalweg to the west and into the downstream bank. This will ultimately result in an increase in scour in the vicinity of the bridge and the abutment itself. Potential loss of the banks could extend for 500 feet downstream of the bridge and be as

wide as 30 feet depending on the amount of trees that are compromised and lost as a result of increased pressure on the banks.

AR-56, pg. 787. The 15-foot realignment and shift in stream thalweg has the potential to endanger the integrity of the “existing tree line, fence, and pasture downstream of the bridge.” AR-56, pg. 787. To fully understand the consequences of the proposed changes, “a hydrologic and hydraulic analysis as well as consideration of changes to the potential Bank Erosion Hazard Index in the stream” is necessary. *Id.* However, such an analysis is not part of the record.

Furthermore, the expert reports show that the elevation changes have not been appropriately analyzed with respect to floodplain and flood elevations in larger storms. *See* AR-53, pgs. 688-694. There is documented evidence of “occurrences of local property damage during larger storms indicat[ing] that this area is impacted by high flood stages.” AR-53, pg. 693. This issue alone also is sufficient for the project to require additional environmental review.

PennDOT incorrectly states that the “[t]he project will have no significant floodplain encroachment..., since the project will not . . . [h]ave a significant adverse impact on natural or beneficial floodplain values.” AR-26, pg. 25. However, Princeton Hydro responds to this conclusory assertion by contesting that:

The [Flood Insurance Rate Map] gives the **appearance** that the floodplain narrows in the vicinity of the bridge; however; this is **not** an accurate reflection of what occurs at the site and is not supported by past flood events. According to a local resident, the bridge itself has

overtopped at six times since 1989 and has a history of frequent flooding. The overall flood extents stretch several hundred feet from the bridge crossing and have resulted in property damage and the roadway is frequently flooded out. The proposed bridge opening expansion and the elimination of one pier may have an **adverse impact on the floodplain** as the opening is increased. This will convey more water through the bridge opening, thereby reducing connection to the natural floodplain.

AR-60, pg. 23.

In addition, an expert report has also noted that “the proposed west abutment and road raises the existing road elevation approximately 2.5 feet but the full extent of that fill (including intrusions into neighboring properties and into the floodplain) are not included” in the administrative record. AR-56, pg. 785. For example, the report states that:

The pasture to the west of Tinicum Creek appears to be within the FEMA 100-year flood zone A. Extension/raising of the western approach road as proposed by PennDOT may result in fill within the floodplain. Fill in floodplain areas reduces the overall available conveyance area and can impact the overall flood flow patterns in the system. These changes can increase velocities and create erosion in overbank areas in and around the fill.

AR-56, pg. 786.

Modeling is therefore necessary to fully understand this significant problem; however, no such modeling addressing this issue is included in the administrative record. Additionally, because of these issues, the proposed Project must have impacts to the floodplain fully evaluated for the 2 to 100 year storms to prevent

negative impacts of this bridge design on life and property. However, again such an analysis never occurred.

Demolition of the Bridge will also threaten the ecological quality of the Tinicum Creek, an “exceptional value” waterway. The construction of a new bridge at Headquarters Road over Tinicum Creek will impact the aquatic ecosystem posing a risk to both the physic-chemical and ecological quality of Tinicum Creek, an exceptional value waterway within the designated Lower Delaware National Wild and Scenic River system. The entire Tinicum Creek watershed is ranked as first priority to protect in a countywide study based on its variety of uncommon plant communities, large numbers of rare plant and animal species, and the exceptional quality of the water. AR-51, pg. 1217. Four hundred plant species and over 100 nesting bird species inhabit the watershed. The proposed new larger bridge replacement could have direct and adverse effects on water quality, river hydraulics, and aquatic organisms. Construction of the proposed new bridge will have water quality impacts during the initial construction as well as long term impacts as a result of the bridge’s presence. AR-51, pg. 1217.

Expert reports have identified numerous other environmental issues that all have yet to be addressed by PennDOT in the administrative record. *See e.g.* AR-56, pgs. 784-789; AR-60, pgs. 19-25; AR-60, pgs. 12, 13. For example, an expert report describes how the increase in impervious surface area will result in increases in the

rate, volume, and temperature of runoff which will have harmful impacts on the exceptional value stream. *See* AR-56, pgs. 784-789. While there is no question that these impacts will occur as a result of the proposed Project, and that such impacts are detrimental to the health and vitality of the stream, there is no analysis of this issue in the record.

PennDOT has also stated that “the reduction of potential scour would improve water quality by reducing the deposition of sediment in this EV stream.” AR-20, pg. 27. However, the replacement of the bridge “will not reduce the deposition of sediment in the EV stream overall.” AR-60, pg. 22. In fact, it is a fundamental principle that “[r]educing scour **does not reduce sediment deposition**; in fact, scour countermeasures reduce channel bed degradation in the vicinity of the bridge only as needed to protect the bridge infrastructure.” *Id.* (emphasis added). PennDOT also did not account for the “increase in scour just upstream of the bridge as a result of the larger opening” without the piers. AR-56, pg. 785. Sediment from the sand/gravel bars that currently exist upstream will mobilize until a new stable equilibrium is reached, thus increasing the scour in the creek from existing conditions. *Id.* This sediment mobilization “potentially caus[es] issues for aquatic organisms, changing flow patterns, and raising concerns about water quality.” AR-56, pg. 787. An expert report concludes that “given the potential for sediment mobilization both in the form of bed and bank materials resulting from the change

in bridge configuration, a comprehensive geomorphic study should be undertaken to best quantify the sediment losses and stream impacts caused by the proposed bridge.” AR-56, pg. 786. No geomorphic study has been conducted.

The Tinicum Creek was designated an “exceptional value” watershed under Pennsylvania law in 1996. 25 Pa. Code § 93.4b. Pennsylvania law mandates that “[t]he water quality of Exceptional Value Waters shall be maintained and protected.” 25 Pa. Code § 93.4a. The impacts identified above potentially represent a violation of 25 Pa. Code § 93.4a. Additional expert review reaffirms the need for a full study of the proposed altered flow regime. “No recent and up-to-date Hydrologic and Hydraulic Study has been performed on the proposed bridge design to demonstrate and support the assumption that altering bridge abutment locations, altering the number of bridge piers, and relocating the flow path of the stream underneath the bridge will not cause either individual or cumulative impacts to Tinicum Creek.” AR-60, pg. 25.

PennDOT makes the inaccurate assertion that, “[replacement] would also improve the free-flowing nature of the creek through the removal of two piers and the repositioning of the western abutment outside of the stream channel.” AR-20, pg. 27. However, removal of piers “does not improve ‘free-flow’ of the creek as these features are not a barrier nor do they create ponding effects as a dam would.” AR-60, pg. 22. Indeed, overwidening the channel by repositioning the western

abutment can have the **reverse effect** by “negatively impact[ing] the flow of the creek as the water depths are fairly shallow and would become more so with a wider overall channel bottom through the expanded bridge cross-section described in the CE document.” AR-60, pg. 22.

PennDOT states, “[i]n-stream work would include temporary stream diversions and the dewatering of areas...” and “portions of the stream would need to be dewatered during construction for the removal of the piers, resulting in a temporary impact to the stream.” AR-26, pg. 6. However, the PennDOT fails to include any studies on the potential impacts of dewatering the stream channel. The expected “impacts to groundwater as a result of planned dewatering activities should be evaluated” because of the “interconnection” between the Tinicum Creek and the Tohickon Creek “may impact critical groundwater areas.” AR-60, pg. 21. Because dewatering activities in this particular area may lead to drinking water and other groundwater impacts, further environmental analysis on this issue necessary.

DRN has repeatedly recommended that to mitigate against the harms resulting from bridge replacement activities, natural channel design principals are the most appropriate way to stabilize and rehabilitate the area around the Bridge and to address and prevent scour and erosion issues. Indeed, in addition to comments prepared by DRN with the assistance of its Stream Restoration Program Manager, two expert reports have been generated that have both recommended these strategies.

See AR-56, pgs. 784-789; AR-60, pgs. 12-13. However, Defendants have wholesale dismissed such solutions by stating that it is “beyond the scope of the current project to incorporate natural channel design and stream restoration principals beyond the project limits.” AR-24, pg. 42.

Such a cursory response fails to recognize that natural channel design and restoration interventions are not in fact outside the project limits given that they are necessary to address issues at, and resulting from, the identified project area and are softer bioengineering approaches that would work with the design and location of the bridge to limit scour, streambank erosion, redirect flow, and protect the stream bed. For example, while all streams shift their positions over time, it is unnecessary to realign the bridge opening to “catch” the moving stream. AR-56, pg. 788. Standard natural channel design measures “could be installed upstream of the bridge to direct flow into the center of the stream channel and take the pressure off of the river right bank.” AR-56, pg. 788. Indeed, there are various configurations of “vanes made with stones or logs that span all or part of the channel that, when appropriately designed and installed could safely redirect flows into the existing channel without compromising the current bridge configuration or the downstream property owner.” AR-56, pg. 788. However, such analysis have been inexplicably ignored by PennDOT and FHWA throughout the NEPA process.

PennDOT has suggested that to stabilize the stream, it will place riprap in the stream channel. However, expert analysis has confirmed that such a technique should only be considered a “last resort in EV streams.” AR-57, pg. 106. The need for riprap in “exceptional value” streams should be limited to protection of infrastructure only when necessary. Riprap is a rigid engineering measure employed to inhibit movement of the stream that could negatively impact the infrastructure for which the measure is trying to protect. AR-57, pg. 106. PennDOT states that there are methods to reduce the negative impacts to the stream by placing riprap and includes examples such as “choking the rip-rap with fill material” and “seeding it with a riparian seed mixture which can improve habitat along the stream banks adjacent to the structure.” AR-57, pg. 106. However, using fill material to “choke” rip-rap is not sufficient to reduce negative impacts on the stream. Riprap’s angular nature does not allow for fully choking of voids and the use of unspecified fill material does not achieve any habitat benefits. In addition, seeding rock without soil will not result in germination. This issue, as with the others, remains unresolved in by and documentation in the record. Additionally, such a technique is:

inconsistent with PennDOT’s antidegradation policy⁵ and the Act 167 stormwater management plan. PennDOT’s antidegradation policy states that vegetative alternatives for slope and channel erosion protection should be considered. In addition, the antidegradation policy

⁵ See Pennsylvania Department of Transportation, *PennDOT Drainage Manual*, March 2015 Edition, Publication 584, April 15, 2015.

states that “advances in erosion control technologies in recent years has made it possible for vegetated lining to be used in channels that may experience moderate to high velocities and shear stresses. In fact, some products offer higher shear stress resistance than riprap lining. Vegetated channels also provide water quality benefits, such as filtering and adsorption of pollutants, which riprap channels do not.” In addition, the use of riprap banks does not provide any environmental or ecological benefits to the EV stream such as tree canopy for temperature control.

AR-60, pg. 23.

Lastly, the consulting parties that have been engaged on this Project for years have continuously, and clearly, opposed the replacement of the Bridge on environmental grounds. For example, a consulting party meeting was held on August 24, 2016, to discuss ways to minimize and/or mitigate the project’s adverse effect. During the August 2016 consulting party meeting, a group breakout session was held for consulting parties to work together to brainstorm and present ideas for minimization and mitigation. After each breakout group was given an opportunity to present their ideas recorded on large sheets of paper, consulting parties were given a set of green, yellow, and red stickers to be used to represent that they are like, neither dislike or like, or dislike ideas. Each consulting party was given three (3) of each sticker and asked to place their stickers on each of the newsprints in order to provide feedback on the ideas developed by consulting parties. The results of the feedback session show a widely held and complete rejection of the environmental mitigation

measures being used for the Bridge replacement, and a nearly uniform desire to rehabilitate the bridge. *See* AR-19, pgs. 1-20.

Table	Mitigation/Minimization Idea	Green	Yellow	Red
Table 6	Spend last 10 minutes talking about a temporary bridge	19		
Table 3	Rehabilitate existing 1812 bridge	12	1	
Table 2	Keep 1 lane bridge and stone substructure & More archaeology along stream banks*	10		
Table 5	Temporary Bridge before final PennDOT solution	9	2	1
Table 6	Rehabilitate existing bridge	7		

Table	Mitigation/Minimization Idea	Green	Yellow	Red
Table 1	Did not participate*		7	18
Table 2	Do not disturb surrounding properties or stream banks		2	5
Table 3	Not associated with any written ideas**			5

Additionally, at the December 13, 2016 PennDOT Public Hearing on the draft categorical exclusion, the minutes reflect that roughly nineteen people delivered verbal comments. Of these, seventeen were against PennDOT's plan to rebuild the bridge and two were for replacement. The majority of the comments in opposition to bridge replacement discussed the environmental impacts.⁶

DRN, through experts, identified incorrect or otherwise disputed issues involving environmental impacts from the proposed Project. Furthermore, DRN has identified numerous information gaps whereby critical studies were entirely missing. *See e.g.* AR-56, pgs. 784-789; AR-60, pgs. 19-25; AR-60, pgs. 12, 13. As a result, the proposed Project engenders a “substantial controversy on environmental

⁶ The nature of the opposition on environmental grounds to the replacement of the Bridge in the August and December consulting party meetings is consistent with each and every consulting party meeting held with regard to this Project spanning years.

grounds” without the appropriate environmental studies. *See* 23 C.F.R. § 771.117(b)(2).

4. The Project Results in Significant Environmental Impacts as prohibited in 23 C.F.R. § 771.117(b)(2).

The construction of a new bridge at Headquarters Road over Tinicum Creek will impact the aquatic ecosystem posing a risk to both the physic-chemical and ecological quality of Tinicum Creek, an exceptional value waterway within the designated Lower Delaware National Wild and Scenic River system. *See* AR-1; AR-2; AR-49, pg. 465; AR-57, pg. 74-81. The entire Tinicum Creek watershed is ranked as first priority to protect in a countywide study based on its variety of uncommon plant communities, large numbers of rare plant and animal species, and the exceptional quality of the water. AR-57, pg. 74-45 (citing Ann F. Rhoads and Timothy A. Block, *Natural Ares Inventory of Bucks County, Pennsylvania*, Bucks County Commissioners, 1999, available at www.naturalheritage.state.pa.us/CNAI_PDFs/Bucks_naiupdate2011.pdf). Four hundred plant species and over 100 nesting bird species inhabit the watershed. *Id.* at 75. The proposed new larger bridge replacement could have direct and adverse effects on water quality, river hydraulics, and aquatic organisms. *Id.*

Construction of the proposed new bridge will have water quality impacts during the initial construction as well as long term impacts as a result of the bridge's presence. *Id.* (citing Wheeler, A.P., et al., *Impacts of new highways and subsequent landscape urbanizations on stream habitat and biota*, 13 Reviews in Fisheries Science 141 (2005)). The short-term impacts of construction are typically physical and temporary but the impact of the bridge's presence includes secondary impacts that are chronically generated from the physical presence of the bridge in addition to the chemical pollutants from automobile traffic and stream channel alterations. *Id.* Although there is a potential for similar impacts during our preferred rehabilitation project, it is apparent that the impacts of constructing a new bridge would be much greater due to the larger footprint of disturbance. *Id.*

The greatest threat to the stream during construction will be fine sediment pollution, which can result in direct mortality, reduced reproductive success, and reduction in food. *Id.* at 75-76 (citing Waters, T.F., *Sediment in Streams: sources, biological effects and controls*, American Fisheries Society Monograph 7 (1995); Owens, P.N., et al., *Fine-grained sediment in river systems: environmental significance and management issues*, 21 River Res. Appl. 693 (2005)). A study conducted in Pennsylvania found that even with sediment control techniques, streams impacted by highway construction carried 5 to 12 times more sediment. *Id.* (citing Reed, Lloyd A., *Suspended-Sediment Discharge in Five Streams near*

Harrisburg, Pennsylvania, Before, During, and After Highway Construction, PennDOT and FHWA (1980)). The effects of fine sediment on stream biota have been heavily documented. *Id.* at 76 (citing Cederholm, C.J., and L.M. Reid, *Impact of forest management on coho salmon (Oncorhynchus kisutch) populations of the Clearwater River, Washington: A Project Summary*, University of Washington Institute of Forest Resource (1987); Morantz et al., *Selection of microhabitat in summer by juvenile Atlantic salmon (Salmo salar)*, 44 Canadian Journal of Fisheries and Aquatic Sciences 120 (1987); Scrivener, J.C., and Brownlee, M.J., *Effects of forest harvesting on spawning gravel and incubation survival of chum (Oncorhynchus keta) and coho salmon (O. kisutch) in Carnation Creek, British Columbia*, 46 Canadian Journal of Fisheries and Aquatic Sciences 681 (1989); Argent, D. G., and Flebbe, P. A., *Fine sediment effects on brook trout eggs in laboratory streams*, 39 A Fisheries Research 253 (1999); Scruton, D.A. and Gibson, R.J., *The development of habitat suitability curves for juvenile Atlantic salmon (Salmo salar) in riverine habitat in insular Newfoundland, Canada*, Canadian Special Publication of Fisheries and Aquatic Sciences 149 (1993); Waters, *supra*; Wheeler, A.P. et al., *Impacts of new highways and subsequent landscape urbanization on stream habitat and biota*, 13 Reviews in fisheries science 141 (2005)). Increased sedimentation causes turbidity in the water column which suffocates and shades macrophytes, damages respiratory structures and reduces

habitat for macroinvertebrates and reduces fish populations through impaired visibility and reductions in prey abundance. *Id.* (citing Waters, *supra*,; Lemly, A.D., *Modification of benthic insect communities in polluted streams: combined effects of sedimentation and nutrient enrichment*, 87 *Hydrobiologia* 229 (1982); Lenat, D.R. et al., *Variable effects of sediment addition on stream benthos*, 79 *Hydrobiologia* 187 (1981); Bruton, M.N., *The effects of suspensoids on fish*, 125 *Hydrobiologia* 221 (1985); Berkman, H.E. and Rabeni, C.F., *Effect of siltation on stream fish communities*, 18 *Environmental Biology of Fishes* 285 (1987);, Armstrong, J.D. et al., *Habitat requirements of Atlantic salmon and brown trout in rivers and streams*, 62 *Fisheries Research* 143 (2003)). Sediments often contain elevated levels of contaminants and nutrients resulting in eutrophication of rivers and human health concerns (i.e. higher levels of pathogens). *Id.* (citing Owens, P.N. and Walling, D.E., *The phosphorus content of fluvial sediment in rural and industrialized river basins*, 36 *Water Research* 685 (2002); Blake, W.H. et al., *Heavy Metal Concentrations during storm events in a rehabilitated industrialized catchment*, 17 *Hydrological Process* 1923 (2003)). According to the Environmental Protection Agency (“EPA”) approximately 10% of waterways in the USA have sediment contaminated with toxic chemicals. *Id.* at 76 (citing Power E., *Sediments in England and Wales: Nature and Extent of Issue* (2002)). While these impacts may be temporary, these sediments can travel long distances in the stream channel and be deposited in downstream pools

and riffles resulting in long-term regional impacts. Wellman, J. C. et al., *Long-term impacts of bridge and culvert construction or replacement on fish communities and sediment characteristics of streams*, 15 Journal of Freshwater Ecology 317 (2000). For this Project, there is the potential for greater sediment pollution loads during construction due to the Agencies' proposed new bridge as it creates a greater disturbance of sediment compared to rehabilitating the existing structure. *Id.*

Construction of a new bridge will also result in other physical habitat impacts in waterbodies by encroaching onto the floodplain, damaging or destroying riparian areas, and soil compaction due to the use of heavy equipment. *Id.* (citing Wheeler, *supra*). Any construction activity near the stream has the potential for incidental damage to riparian vegetation through soil disturbance or purposeful removal of vegetation for access. Riparian vegetation is critical for stream watershed protection and these buffers perform many important functions for the stream including pollution filtering, stormwater reduction, and erosion prevention. Additionally, heavy equipment used in bridge construction can result in the compaction of soils which affects the infiltration rate and therefore, the survival of vegetation and flood water increases. *Id.* at 77 (citing Ocean County Soil Conservation District (OCSCD) et al., *The Impact of Soil Disturbance During Construction on Bulk Density and Infiltration in Ocean County, New Jersey*, River Research and Applications (2001); Pitt, R, et al., *Compaction's impacts on urban storm-water infiltration*. *Journal of*

irrigation and drainage engineering, 652 (2008); Gregory, J.H. et al., *Effect of urban soil compaction on infiltration rate*, 61 *Journal of soil and water conservation* 117 (2006); Law, N.L., et al., *The need for improved pervious land cover characterization in urban watersheds*, 14 *Journal of Hydrologic Engineering* 305 (2009)).

In addition to the highly detrimental impacts of construction, the permanent presence of a new, larger bridge will no doubt have long-term impacts. *Id.* (citing Waters, *supra*). The bridge surface will collect a variety of chemical pollutants from automobile traffic, deicing salt, and storm water runoff. *Id.* (citing Law, *supra*; OCSCD, *supra*). Pollution loads in runoff from road surfaces include metals such as zinc, iron, lead, cadmium, nickel, copper, and chromium, petroleum and gasoline, and deicing salt. *Id.* (citing Wheeler, *supra*). The concentrations of these contaminants in streams have been shown to be positively correlated to the volume of traffic, which suggests that a larger two-lane bridge will have a greater and more severe impact than the current one lane historical bridge. *Id.* (citing Callender, E., and Rice, K. C., *The urban environmental gradient: anthropogenic influences on the spatial and temporal distributions of lead and zinc in sediments*, 34 *Environmental Science & Technology* 232 (2000)). For example, levels of lead and zinc in fish and macroinvertebrates have been shown to be locally related to the amount of traffic at upstream highway crossings. *Id.* (citing Van Hassel, J. H., et al., *Heavy metals in a*

stream ecosystem at sites near highways, 109 Transactions of the American Fisheries Society, 636 (1980)).

Any changes to the road crossing/ bridge have the potential for hydrologic impacts and floodplain effects. Without the specific plans of the proposed new bridge, it is hard to say specifically what those impacts may be. However, it is safe to assume based on previous scientific studies, that a new bridge will most likely result in changes to the turbulence, velocity, streambed gradient and water depths. *Id.* at 77-78 (citing Votapka, F.E., *Considerations for fish passage through culverts*, 1292 Transportation Research Record 347 (1991); Wall, S. S. and C. R. Berry Jr., *Road culverts across streams with the endangered Topeka shiner, (Notropis topeka), in the James, Vermillion, and Big Sioux River basins*, 83 Proceedings of the South Dakota Academy of Science 125 (2004); Coffman, J. S., Evaluation of a predictive model for upstream fish passage through culverts, James Madison University (2005)). Currently the 25 year flood event overtops the adjacent roadway, and therefore, any additional fill placed within the flood way will increase localized flooding issues. *Id.* It is important to consider the full range of hydrologic conditions that may occur and how the proposed construction and final structure will impact the stream across a range of hydrologic conditions. *Id.*

In addition to and as a result of the water quality and hydrologic impacts of the new proposed bridge, there will be impacts to biological stream communities of

both macroinvertebrates and fish. *Id.* (citing Chen, Y., et al., *Effects of highway construction on stream water quality and macroinvertebrate condition in a mid-Atlantic highlands watershed, USA*, 38 *Journal of Environmental Quality* 1672 (2009); Pepino, M, et al., *Impacts of highway crossings on density of brook charr in streams*, 49 *Journal of Applied Ecology* 395 (2012)). Aquatic organisms have a more difficult time avoiding the impacts of construction than terrestrial animals because their movements are confined to the stream channel. Pepino, *supra*. Providing adequate fish passage is important because the movement of fish throughout the watershed is vital for their survival. Restriction or blockage of fish movement can be caused due to different water velocities, water depths, turbulence, and loss of habitat. Many studies have recognized that road crossing can reduce or eliminate fish passage and the differential impacts of various construction techniques. *Id.* (citing Pardew, M. G., 1998. *Road crossings as barriers to small-stream fish movement*, 127 *Transactions of the American Fisheries Society* 637 (1998); Sheer, M. B., and Steel, E. A, *Lost watersheds: barriers, aquatic habitat connectivity, and salmon persistence in the Willamette and lower Columbia River basins*, 135 *Transactions of the American Fisheries Society* 1654 (2006)). Long term habitat fragmentation from road crossings have been shown to be significantly more detrimental to fish populations compared to short term impacts of increased sediment load due to construction. *Id.* at 79 (Pepino, *supra*).

Reestablishing natural flow regimes is important for undoing harm caused by development near stream ecosystems. *Id.* at 79 (citing Votapka, *supra*, Chen, *supra*). Short-term objectives are the focus of the proposed new bridge construction and include things such as concrete structures to prevent increased erosion that will not fully mitigate the long term hydrologic and biological consequences of bridge construction. Effective mitigation such as stream restoration and upstream realignment would result in a reconstruction of the physical channel elements that resemble undisturbed channels, additional habitat for self-sustaining biotic communities, increased water quality, and long-term improvements of stream conditions. Additionally, rehabilitating the bridge will have less impact on the natural stream channel bottom promoting fish passage and avoiding impacts to flow. AR-53, pgs. 688-694.

There is a significant opportunity for Natural Channel Design to be utilized upstream of the bridge to guide the creek towards the openings in the existing bridge. Natural Channel Design can also be used to improve in-stream habitat. *Id.* (citing USDA NRCS, *Part 654 Stream Restoration Design, National Engineering Handbook, Chapter 11, Rosgen Geomorphic Channel Design* (2007); Baldigo, Barry P., et al., *Response of Fish Populations to Natural Channel Design Restoration in Streams of the Catskill Mountains, New York*, 28 *North American Journal of Fisheries Management* (2008)). Riparian plantings associated with

Natural Channel Design can improve the riparian habitat. In-stream techniques such as J-hook Vanes and Cross Vanes could be used to re-direct the creek, reduce bank erosion, and guide the creek towards a bridge opening. *Id.* (citing USDA NRCS, *supra*). Without Natural Channel Design employed upstream, the wing walls and rip rap of a new bridge would need to be significantly enlarged from existing, thus limiting the area available for planting near the bridge; this would decrease vegetative shading of the water; tree shade is very important to help reduce water temperature which is critical for healthy fish populations and breeding. *Id.* at 80 (citing Allan, J., et al., *Stream Ecology: Structure and Function of Running Waters*, 2nd ed. (2007)).

PennDOT has documented stream alignment problems as one reason to need to re-build the bridge in a shifted location, because the creek has moved away from the historic bridge openings and is now aligned towards an existing wing wall causing scour. AR-12. However, the creek will try to continue to meander over time within the floodplain, so simply shifting the bridge won't solve the problem. *Id.* (citing Hickin, Edward J., *The Development of Meanders in Natural River-Channels*, 274 American Journal of Science 414 (1974)). Any bridge location, including the existing bridge or a shifted bridge, needs upstream alignment control to keep the creek aligned with the bridge openings; significant opportunity exists upstream for

the Natural Channel Design,. *Id.* (citing Hickin, *supra*). Therefore stream alignment issues are not a valid reason to shift the bridge away from its historic location.

There are negative scenic and historical site impacts that would result from a new and larger bridge, including the installation of significant permanent structures and stream control devices adjacent to the bridge. At the Section 106 Hearing on November 4, 2013, PennDOT provided no substantial information on the proposed site features and site disturbance of a new and larger bridge, for instance for the length and height of wing walls; length and height of walls or slopes needed for widened roads; rip rap slopes; stone scour protection; and the size of the area of disturbance caused by construction activities. AR-21, pg. 270. Therefore, public review and comment on this important issue was hindered due to lack of information, and design is apparently proceeding without this valuable input. No substantial site work proposal was presented, which is a grave concern given that site work can have a larger footprint impact on a site than a bridge does, significantly threatening the existing scenic and historic character.

II. DEFENDANTS' APPROVAL OF THE PROJECT VIOLATED
SECTION 4(F) OF THE DEPARTMENT OF TRANSPORTATION
ACT.

A. Bridge Rehabilitation Is A Feasible And Prudent Avoidance Alternative.

Pursuant to the Department of Transportation Act, a Section 4(f) evaluation must be prepared for each location within a proposed project before the use of Section 4(f) land is approved. *See* 23 C.F.R. § 771.135(a). Specifically, section 303(c) of the Act states that:

[T]he Secretary may approve a transportation program or project ... requiring the use of ... land of an historic site of national, State, or local significance . . . **only if-(1) there is no prudent and feasible alternative to using that land; and (2) the program or project includes all possible planning to minimize harm to the ... historic site resulting from the use.**

49 U.S.C. § 303(c) (emphasis added). Neither Defendant argues that rehabilitation of the Bridge is not feasible. This is unsurprising considering that PennDOT already conceded that rehabilitation of the Bridge was possible if Tinicum Township took responsibility for maintenance of the Bridge. *See* FHWA Br. at ¶ 19 (c) (ii); *see also* AR-12; AR-18. Indeed, DRN has already done Defendants' job for them, and provided construction plans signed and sealed by a certified engineering firm for rehabilitation. *Id.* Instead, PennDOT and FHWA argue that rehabilitation is not "prudent." *See* PennDOT Br. at 29-37; FHWA Br. at 18-20. However, again Defendants' arguments do not withstand scrutiny.

Defendant's decision to replace the Bridge violates the Department of Transportation Act ("DOTA") by disregarding a reasonable and prudent alternative, and by failing to minimize harm to the Bridge. Under Section 4(f), "an alternative is not a prudent alternative if there are truly unusual factors present, if the cost or community disruption resulting from the alternative reaches extraordinary magnitudes, or if the alternative presents unique problems." *Concerned Citizens Alliance, Inc. v. Slater*, 176 F.3d 686, 702 (3d Cir. 1999); *see also* 23 C.F.R. §§ 774.17(i)-(vi). The same is true under Section 4(f)(2). *See Concerned Citizens Alliance, Inc. v. Slater*, at 690-91.

Specifically, PennDOT argues that rehabilitation is "not a prudent alternative because it does not satisfy the project needs, results in unacceptable safety issues, and results in operational problems." PennDOT Br. at 32, 34. As such, PennDOT focuses on factors (i) and (ii) of Section 774.17 to find that rehabilitation is not prudent, as none of the other factors are cited. *See* 23 C.F.R. §774.17(i), (ii) ((i) "[i]t compromises the project to a degree that it is unreasonable to proceed with the project in light of its stated purpose and need," (ii) "[i]t results in unacceptable safety or operational problems"). However, these arguments fail for a number of reasons.

First, with regard to project needs, PennDOT does not address the correct legal standard. The standard is not whether rehabilitation "satisf[ies] the project needs," the standard is whether rehabilitation would "compromise[] the project to a degree

that it is unreasonable to proceed with the project in light of its stated purpose and need.” 23 C.F.R. §774.17(i). Here, PennDOT already found that rehabilitation of the Bridge was acceptable, as PennDOT agreed to rehabilitation of the Bridge if Tinicum Township accepts responsibility for maintenance. *See* FHWA Statement of Facts at ¶ 19(c)(ii).

Defendants argue that a one-lane bridge would not meet the project purpose and need given the inability of the one-lane bridge to meet the design criteria under both AASHTO and PennDOT guidelines. AR-11; AR-27, pg. 49. However, record evidence demonstrates that the Project can meet the needs of the Project, and Defendants’ reliance on the AASHTO and PennDOT design criteria is misplaced. For example, Defendants have conceded that AASHTO’s guidelines clearly state that “existing bridges can remain in place without widening unless there is evidence of a site-specific safety problem related to the width of the bridge.” AR-12, pg. 23. As discussed, *infra*, there is no site-specific safety problem related to the width of the Bridge, therefore the inquiry may stop here.

Furthermore, PennDOT and FHWA erroneously characterize and rely on the AASHTO guidelines as rigid rules and/or fixed standards. They are not. Indeed, none of the AASHTO standards are codified as requirements; rather, the AASHTO guidelines are flexible recommendations. For example, the AASHTO “Green Book” – *A Policy on Geometric Design of Highways and Streets*, 7th Edition, is, as the name

implies, a set of policy guidelines, not a rulebook. American Association of State Highway and Transportation Officials, *A Policy on Geometric Design of Highways and Streets*, 7th Edition, 2018, available at <https://store.transportation.org/item/collectiondetail/180>. In fact, the “Green Book” specifically calls upon its users to recognize the importance of flexibility in applying its guidelines:

Often, reconstruction projects are limited in scope or available funding, or may be affected by physical constraints or social or environmental considerations. In some locations, especially constrained locations, designing to the criteria recommended herein simply is not feasible. Adaptive, flexible, and cost-effective designs customized to each project context are encouraged. Flexibility in the application of design criteria herein is recommended to encourage a sustainable approach to highway design decision making by weighing and balancing choices among the environmental, economic, and social aspects while meeting the project’s performance objectives.

Id. at lvi. Furthermore, these guidelines make clear that:

[t]his document is intended as a comprehensive **reference manual** to assist in administrative, planning, and educational efforts pertaining to design formulation. This policy **is not intended to be a prescriptive design manual** that supersedes engineering judgment by the knowledgeable design professional. *Id.* (emphasis added). Finally, the policy book “also encourages **flexible design**, which emphasizes the role of the planner and designer in determining appropriate design dimensions based on project-specific conditions and existing and future roadway performance more than on meeting specific nominal design criteria.

Id. (emphasis added). Additionally, PennDOT’s Design Manual itself explicitly recognizes the importance of flexibility in the use of design standards:

An important concept in highway design is that every project is unique. The setting and character of the area, the values of the community, the needs of the highway users, and the challenges and opportunities are unique factors that designers must consider with each highway project. Whether the design to be developed is for a safety improvement or several kilometers (miles) of rural freeway on new location, there are no patented solutions. For each potential project, designers are faced with the task of balancing the need for the highway improvement with the need to safely integrate the design into the surrounding natural and human environments.

Pennsylvania Department of Transportation, *Design Manual Part 2, Highway*

Design, 2015 edition, Publication 13-M, DM-2, 1-3, available at

<https://www.dot.state.pa.us/public/Bureaus/design/PUB13M/Chapters/TOC-2.pdf>.

The Design Manual also makes clear that:

[a]nother important concept in highway design is the development of Context Sensitive Solutions (CSS). CSS is a collaborative, interdisciplinary approach that involves all stakeholders to develop a transportation facility that fits its physical setting and preserves scenic, aesthetic, historic, and environmental resources, while maintaining safety and mobility. Context sensitive design is an approach that considers the total context within which a transportation improvement project will exist.

Id. at 1-3. As such, Defendant’s dogmatic reliance on these documents does not demonstrate that the rehabilitation alternative rises to the level of being imprudent.

PennDOT’s next argument is that rehabilitation would result in “unacceptable safety issues;” however, it fails for several reasons. PennDOT Br. at 30-34. First, it is not reasonable to believe that PennDOT would agree to rehabilitation if it resulted in “unacceptable safety issues.” FHWA Br. at 32. Furthermore, even if PennDOT

had not agreed to rehabilitation of the Bridge if the Township took ownership, the record shows that there are no safety issues related to the historic width of the Bridge, and, if anything, a single lane Bridge is the safer option. *See* AR-57, pg. 36-102; AR-49, pg. 656-689; AR-53, pg. 824-836; AR-54, pg. 105-108; AR-57, pg. 108-119. To establish that there was a safety issue Defendants cite to AR-27, pg. 43-47, with no further explanation. PennDOT Br. at 32 (all of the discussion of safety in AR-27 is on page 45). There, PennDOT contends that ten accidents in the ten years prior to the Bridge's closure is a crash rate "that is significantly higher than statewide average," and that "this indicates that there may be an issue with the availability of clear space along the approach roadways to maneuver if the vehicle leaves the roadway." AR-27, pg. 45. However, this argument has been thoroughly debunked.

First, PennDOT concedes that "*the police do not report that the accidents were directly caused by the bridge.*" *Id.* Additionally, a detailed review of the accidents demonstrates that none had to do with the historic width of the Bridge. AR-49, pgs. 656-689; AR-53, pgs. 824-836; AR-54, pgs. 105-108; AR-57, pgs. 108-119. While PennDOT initially refused to disclose to the public the accident data on which it was relying for its analysis showing a "site-specific safety problem," DRN's experts performed its own examination of ten accidents that occurred relatively close to the Bridge since 2001. *See* AR-54, pgs. 105-108. Based on that analysis, there was no evidence that the historic sixteen foot historic width of the bridge prior to the

jersey barriers being installed (which decreased the width to 10 feet) resulted in a site specific safety problem. Of the ten accident reports, only three were located on or at the Headquarters Road Bridge, one was nearby, and six were unrelated. *Id.*

Following are the reported crashes on or at the bridge:

- 24 October 2003 – A vehicle driving westbound on Headquarters Road attempted a left turn onto the bridge and slid on an icy road surface on the bridge, resulting in contact with the bridge wall.
- 1 April 2006 – An unregistered, uninsured vehicle left the scene of the crash while the driver and passengers were out for a “joyride.” Details of the crash are minimal but do indicate that contact was made with the Jersey barrier on the bridge.
- 7 May 2006 – A motorcyclist reported losing control of his eastbound motorcycle on loose gravel as he entered the bridge.

Id. The historic width of the bridge was not the primary causal factor in any of these accidents – it was a 10-foot cartway at the time of the accidents. The fact that the accidents occurred on a 10-foot lane bridge, which is not proposed in any of the alternates, is simply not a reasonable justification for needing a two lane bridge. A fourth crash, on July 6, 2007, appears to have been near the bridge. *Id.* A vehicle driving westbound was reported as having made contact with a fence or wall near the bridge. Based on the description and the police sketch, the vehicle probably made contact with the fence on the western end of the bridge. Of the six remaining crashes, one occurred on Sheephole Road (February 10, 2003), as two vehicles collided under icy conditions. The remaining five were all associated with the

curve located approximately 250 feet east of the intersection of Headquarters Road and Sheephole Road:

- May 24 2005,
- September 26 2008,
- January 21 2009,
- May 5 2009,
- March 2010

Id.

Of the five crashes at the curve, three occurred when the road surface was wet and all five involved a westbound vehicle crossing the centerline. These crashes are all well beyond the influence of Headquarters Road Bridge. PennDOT has provided no explanation as to specifically how any of these accidents are related to the historic width of the bridge, or how the causes of these accidents could be mitigated by changes to geometry or drainage patterns unrelated to changes to the width of the bridge.

DRN was later provided with the previously missing accident information from the “PennDOT Crash History Summary,” specifically, the “CDART Crash Resume Data,” a summary of the ten accidents PennDOT used in reaching the conclusions stated in the Determination of Effects report. *See* AR-54, pg. 105-108. The new data enabled DRN to compare the two lists in detail. The newly available

PennDOT “CDART Crash Resume Data” provided summary data for ten accidents, including exact location by milepost and “offset” (distance in feet from the nearest milepost). The expert analysis found the following in comparing the two lists:

- Only three crashes are on both the Township and PennDOT lists.
- All three duplicate reports are of crashes at or near the bridge.
- Of the seven PennDOT reported crashes which are not on the Township list (and are also not at or near the bridge), five are located to the west of the bridge (four of these west of the intersection with Red Hill Road) and two are located east of the bridge in the area of the curve discussed in our 14 December 2015 report. None of these seven crashes has any relation to Headquarters Road Bridge.

Id. The three crashes identified on both lists are:

- 24 October 2003. Our description (from the 14 December 2015 report): “A vehicle driving westbound on Headquarters Road attempted a left turn onto the bridge and slid on an icy road surface on the bridge, resulting in contact with the bridge wall.” This crash occurred at the bridge but in our opinion was not caused by the geometry of the bridge. There is nothing in the CDART Crash Resume Data report to contradict this assessment.
- 7 May 2006. Our description: “A motorcyclist reported losing control of his eastbound motorcycle on loose gravel as he entered the bridge.” This crash occurred at the bridge but in our opinion was not caused by the geometry of the bridge. There is nothing in the CDART Crash Resume Data report to contradict this assessment.
- 6 July 2007. Our description: “A vehicle driving westbound was reported as having made contact with a fence or wall near the bridge. Based on the limited description and the police sketch, the vehicle probably made contact with the fence on the western end of the bridge.” PennDOT evidently considers this crash to be at the bridge.

We believe it occurred at some point west of the bridge, not at the bridge. The location data provided by PennDOT is ambiguous, but the police narrative, sketch, and coding (“hit fence or wall,” as distinguished from other possible choices, such as “hit bridge pier or abutment,” “hit parapet end,” “hit bridge rail,” or “hit concrete or longitudinal barrier”) all suggest contact with the fence west of the bridge. In any event, in our opinion the crash was not caused by the geometry of the bridge. There is nothing in the CDART Crash Resume Data report to contradict this assessment.

Id. There is one crash on the Township list – but not on the PennDOT list – which was determined to be at the bridge:

- April 2006. Our description: “An unregistered, uninsured vehicle left the scene of the crash while the driver and passengers were out for a “joyride.” Details of the crash are minimal but do indicate that contact was made with the Jersey barrier on the bridge.” This crash occurred at the bridge but in our opinion was not caused by the geometry of the bridge.

Id. The expert analysis drew the following four conclusions regarding the accident data:

- First, there were – at most – 4 crashes on or at the Headquarters Road Bridge during the last ten years of its service.
- Second, the “PennDOT Crash History Summary” leaves the impression that 10 crashes occurred on or at the bridge, when the CDART Crash Resume Data report clearly identifies only 3.
- Third, there is no evidence that the 3 (or 4 using a more generous definition) crashes that occurred on or at the bridge were caused in any way by the geometry or condition of the bridge.
- Fourth, the crash history points to problems at the curve to the east of the bridge (which we discussed in the 14 December 2015 report) and at the curve west of Red Hill Road (which we did not analyze but which show several accidents in the PennDOT data), not at the bridge.

- Finally, the additional data provided in the CDART Crash Resume Data report reinforces our opinion that the crash history does not support the conclusion that there is a site-specific safety problem at the Headquarters Road Bridge.

Id. As such, the administrative record provides no evidence of a site-specific safety problem at that bridge. Defendants have failed to respond in the record to these specific safety comments.

Lastly, to support its argument that rehabilitation is not “prudent” PennDOT argues that there are “operational problems” that are “unacceptable.” PennDOT Br. at 32-33. However, again PennDOT apparently believed that whatever “operational problems” exist are, in fact, acceptable by virtue of the fact that PennDOT was willing to agree to Bridge rehabilitation. Nevertheless, a review of the record evidence shows that there are no such operational problems with rehabilitation. Again, PennDOT cites AR-27, pgs. 43-47 to support its position that there were “operational problems.” PennDOT Br. at 32-33. However, a review of AR-27 indicates that there is there is no identification or discussion of “operational problems.” *See* AR-27 (the term “operational problems” does not appear in the document). Nevertheless, there are no operational problems related to rehabilitation of the Bridge.

The only geometric issue that PennDOT specifically identifies – and claims that it will be addressed by the proposed Project – is the assertion that the existing

structure “cannot safely and effectively accommodate current and future traffic needs including emergency response vehicles.” AR-27, pg. 16; AR-5, pg. 14. PennDOT states that a curb-to-curb width of 16-feet “cannot accommodate Tinicum Township’s largest fire response vehicle, a 41.5-foot ladder truck.” AR-12, pg. 14. However, the Delaware Riverkeeper Network has provided numerous expert reports specifically refuting this specious claim. *See, e.g.*, AR-53, pgs. 548-551; AR-53, pg. 824-836; AR-53, pg. 688-694; and AR-54, pg. 105-108.

Indeed, PennDOT conceded, “it is true that a wider bridge **is not necessary to accommodate fire company operations.**” AR-14, pg. 15 (internal quotations omitted) (emphasis added). Furthermore, the record is clear on this issue, and shows that the proposed rehabilitated Bridge can accommodate all emergency service vehicles, including the largest fire response vehicle in Tinicum Township – Ladder 49 of the Ottsville Volunteer Fire Company. *See* AR-49, pgs. 656-689; AR-53, pgs. 824-836; AR-54, pgs. 105-108; AR-57, pgs. 108-119. This 41.5-foot ladder truck continuously operated across the Headquarters Road Bridge when it had a “10-foot cartway,” and can therefore navigate the proposed rehabilitated, and wider, 16-foot Bridge. *Id.* The expert report specifically concluded that a “wider bridge is not necessary to accommodate fire company operations.” *Id.* PennDOT fails to provide a single example whereby the ladder truck, or any other emergency vehicle, was prevented from completing its operations as a result of the historic

width of the Bridge. *See also* AR-53, pgs. 412, 446, 465, 507, and 584 (Ottsville fire chief expressed no preference for a single vs two-lane bridge).

Additionally, if anything, a one-lane bridge at this location is **safer** than the proposed two-lane bridge. An expert literature review revealed that that the “traffic calming effects” of a one-lane bridge actually increased safety. *See* AR-49, pgs. 656-689. The review found that:

[D]ue to the narrowing roadway to one lane, traffic naturally slows down. An analogy would be the installation of a one-lane “choker” and/or neck-down. . . The Institute of Transportation Engineers [ITE] estimates that speed is reduced by 14% when one-lane chokers are implemented for roadway widths under 20 feet and greater than 17 feet. Speed reduction can enhance safety and, if a crash does occur, severity has a tendency to be reduced at the lower speeds. The same ITE reference also states that one lane chokers can have a traffic volume reduction of 20%. A reduction in volume also decreases the risk of a crash and enhance the safety of the location.

Id. at 685-686. As such, not only are emergency vehicles able to navigate the rehabilitated one-lane Bridge, but it would also have “traffic calming effects” that would result in speed reductions, crash intensity reductions, and traffic volume reductions. Therefore, if anything the one lane Bridge is safer than a two lane Bridge.

Defendants also cite to the average daily traffic counts as being too high for a one lane Bridge. *See, e.g.,* PennDOT Br. at 14, 32. However, as described above the AASHTO standards are not rules, and additionally, the data relied upon by

Defendants is, at best, highly questionable. For example, an expert report notes that:

The historic traffic volume data . . . show that some areas have had a significant reduction in volume over the years. Investigation and discussion with the Tinicum Township Police Department indicated that long-term bridge closures around the township may have been a contributing factor to the changes in traffic volumes. Most notable was the Geigel Hill Road Bridge at Sheep Hole Road closure from 2002 to 2011; the Dark Hollow Road Bridge, closed from 2002 to 2004; and Headquarters Road Bridge at Sheep Hole Road, closed in Spring 2011 and yet to reopen. In addition, the Covered Bridge on Geigel Hill Road in Erwinna was closed for several weeks in 2013 due to a truck striking the wooden beams, and the Bridgeton Hill Road Bridge, north of Tinicum Township, was closed for several months beginning in October 2012 for replacement. With at least one bridge closure within and around Tinicum Township since 2002, it is difficult to assess the true traffic patterns as motorists have been forced to detour so often.

AR-49, pg. 678. As such, the traffic counts relied upon by Defendants are unreliable, and do not reflect of the current potential traffic usage of the Bridge. As such, it is yet another example of an information gap that would benefit from additional study, which Defendants have attempted to paper-over in order to replace the Bridge.

PennDOT also contends that “the original piers were not designed for modern loadings and their reconstruction may still require a posted weight limit as the pier capacity will potentially govern the structure rating, thus, it does not meet the structurally deficient need.” PennDOT Br. at 33. However, again PennDOT’s analyses is inaccurate. PennDOT states that to “support” its position regarding the

loading capacity of the piers it “reviewed” the *Architect’s and Builder’s Pocket Book*, 1st Edition 1884, by Frank E. Kidder. This version was superseded by later versions as technology was developed, including a 1942 version, “which contains much more updated and authoritative information on allowable rubble stone masonry stresses that are similar to those found in building codes or AASHTO. AR-57, pgs. 382- 384. The later 1942 edition of Kidder’s Pocket Book, provides a safe allowable load of 100 psi for “Rubble Stone” in “Cement lime mortar.” *Id.* This “value is similar to the AASHTO Manual for Condition Evaluation of Bridges value of 100 psi for rubble stone in type N mortar.” *Id.* According to PennDOT’s response, they calculated that the applied loads in the piers for a new prestressed concrete superstructure with HS-20 loading exceeded the allowable stresses of 13.89 psi by 80%. This means that the PennDOT calculated HS-20 applied stress equals $13.89 \text{ psi} \times 1.8 = 25.00 \text{ psi}$. *Id.* PennDOT’s “calculated applied stress of 25.00 psi is four times less than the 1942 Kidder and AASHTO values of allowable stress.” *Id.* (emphasis original). It is even 38% less than the conservative 1886 Kidder value of 34.72 psi. *Id.* **The stress in the piers is well within the acceptable limits.** *Id.* (emphasis added).

PennDOT contends that “[w]idening the bridge deck improves the sight distances and improves the turning movements to and from the bridge onto Sheep Hole Road including emergency vehicles unlike the rehabilitation alternatives.”

PennDOT Br. at 35. However, PennDOT does not mention that widening the bridge still will require numerous design exceptions. Indeed, Defendants specifically concede that “all geometric features associated with this project (horizontal and vertical curvature, sight distance, shoulder width, clear zone, bridge width, etc.) will require design exceptions.” AR-14, pg. 98; *see also* AR-14, pg. 43. Additionally, PennDOT does not mention that sight distance issues can be addressed by rehabilitation. For example, a stop sign in advance of the bridge on the western approach would resolve the sight distance issue, while improved road markings and signage would reduce the potential of run-off-the-road events and other problems that might be associated with horizontal curves and grades near the bridge. AR-17, pgs. 1-24. As such, PennDOT’s reliance on geometric issues to replace the Bridge is baseless. *See* PennDOT Br. at 32-33.

In light of the foregoing, there is no evidence that rehabilitation rises to the level of “compromise[ing]” the project to a degree that “it is unreasonable to proceed with the project,” nor is there evidence that rehabilitation would result in “unacceptable safety or operational problems.” 23 C.F.R. §§ 774.17(i),(ii). As such, Defendants’ 4(f) Determination that rehabilitation was not a “prudent” avoidance alternative was arbitrary and capricious.

CONCLUSION

For the foregoing reasons, Plaintiffs respectfully request that this Honorable Court **DENY** PennDOT's and FHWA's Motions for Summary Judgment, and **GRANT** Plaintiffs' Counter-Motion for Summary Judgment.

Dated: 5/30/19

Respectfully Submitted,

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CERTIFICATE OF SERVICE

I hereby certify, this 30th day of May, 2019, that a copy of the foregoing was served electronically on all counsel of record.

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